

**PROFESSOR DIMITRIOS S. NIKOLOPOULOS**

John W. Hancock Professor of Engineering  
Professor, Department of Computer Science  
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**Employment History**

**John W. Hancock Professor in Engineering**, Virginia Tech, Aug. 2019–present  
**Professor**, Department of Computer Science, Virginia Tech, Aug. 2019–present  
**Institute Director**, Queen's University Belfast Research Institute in Electronics, Communications and Information Technology (ECIT), Jan. 2018–Aug. 2019  
**Head of School**, School of Electronics, Electrical Engineering and Computer Science, Queen's University Belfast, Jan. 2016–Jan. 2018  
**Royal Society Wolfson Research Fellow**, Queen's University Belfast, Sep. 2015–present  
**Professor & Chair in High Performance and Distributed Computing**, School of Electronics, Electrical Engineering and Computer Science, Queen's University Belfast, Jan. 2012–Aug. 2019  
**Research Director**, Centre for Data Science and Scalable Computing, Queen's University Belfast, Jan. 2012–Feb. 2019  
**Adjunct Professor**, Department of Computer Science, Virginia Tech, Oct. 2016–Aug. 2019  
**Adjunct Professor**, Department of Computer Science, Old Dominion University, Oct. 2013–present  
**Associate Professor with Tenure**, Department of Computer Science, University of Crete, Sep. 2009–Jan. 2012  
**Affiliate Professor**, Institute of Computer Science Foundation for Research and Technology (FORTH), Sep. 2009–Jan. 2012  
**Associate Professor with Tenure**, Department of Computer Science, Virginia Tech, Aug. 2008–Sep. 2009  
**Associate Professor Tenure-Track**, Department of Computer Science, Virginia Tech, Aug. 2006–Aug. 2008  
**Assistant Professor Tenure-Track**, Department of Computer Science, College of William & Mary, Aug. 2002–Aug. 2006  
**Visiting Assistant Professor**, Department of Electrical and Computer Engineering, University of Illinois, Urbana-Champaign Jan. 2001–Aug. 2002

**Earned Degrees**

PhD, Computer Engineering and Informatics, University of Patras, Dec. 2000  
MEng, Computer Engineering and Informatics, University of Patras, Jul. 1997  
BEng, Computer Engineering and Informatics, University of Patras, Jul. 1996

**Research Interests**

**System Software**: operating systems & virtualization; programming languages & runtime systems  
**Computing Systems**: multiprocessor architectures; heterogeneous systems; data centers; memory & storage technologies.  
**Performance Engineering**: measurement & modelling of computing systems performance, energy, and resilience.

**Honors and Awards**

**Best Paper Award**, Design Automation and Test in Europe Conference (DATE), 2020  
**IEEE Award for Editorial Excellence**, IEEE Transactions on Parallel and Distributed Systems, 2020  
**John W. Hancock Chair in Engineering**, Virginia Tech, 2019–present

**Elsevier Distinguished Editorial Service Award**, 2019  
**Distinguished Member of the ACM**, 2018  
**Fellow of the IET**, 2017  
**Investors in People Silver Award**, 2017  
**Royal Society Wolfson Research Merit Award**, 2015 (extended to lifetime)  
**SFI-DEL Investigator Award**, 2015  
**Fellow of the British Computer Society**, 2014  
**IEEE Outstanding Service Award**, 2014  
**ACM Senior Member**, 2011  
**IEEE Senior Member**, 2010  
**IBM Faculty Award**, 2007  
**DOE Early Career Principal Investigator Award**, 2005  
**NSF CAREER Award**, 2004  
**Marie Curie Fellow**, 2009  
**HiPEAC Fellow**, 2008  
**Best Paper Award**, ACM International Workshop on Code Optimization for Multi and Many Cores (COSMIC), 2013  
**Best Paper Award**, ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPOPP), 2007  
**Best Paper Nomination**, ACM Symposium on High-Performance Parallel and Distributed Computing (HPDC), 2006  
**Best Paper Award**, International Workshop on OpenMP (IWOMP), 2005  
**Best Paper Award**, International Symposium on High Performance Computing (ISHPC), 2003  
**Best Paper Award**, IEEE/ACM International Symposium on Cluster Computing and the Grid (CCGRID), 2002  
**Best Paper Award**, IEEE/ACM International Parallel and Distributed Processing Symposium (IPDPS), 2002  
**Best Paper Nomination**, ACM International Conference on Supercomputing (ICS), 2001  
**Best Paper Award**, IEEE/ACM Supercomputing: High Performance Networking and Computing Conference (SC), 2000  
**Best Paper Nomination**, ACM International Conference on Supercomputing (ICS), 1999  
**Outstanding Academic Performance Award**, Technical Chamber of Greece, 1996  
**Outstanding Academic Performance Award**, Technical Chamber of Greece, 1993  
**Outstanding Academic Performance Award**, National Scholarships Foundation of Greece, 1992

## **Publications**

### **Journal Articles Refereed**

- [J59] J. Sun, H. Vandierendonck, and D. Nikolopoulos, "Fast load balance parallel graph analytics with an automatic data structure selection algorithm," *Future Generation Computer Systems*, Jun. 2020, Accepted.
- [J58] J. Lee, G. Peterson, H. Vandierendonck, and D. Nikolopoulos, "Air: Iterative refinement acceleration using arbitrary dynamic precision," *Parallel Computing*, May 2020, Accepted.
- [J57] N. Wang, B. Varghese, M. Matthaiou, and D. Nikolopoulos, "Dyverse: Dynamic vertical scaling in multi-tenant edge environments," *Future Generation Computer Systems*, vol. 108, pp. 598–612, Jul. 2020.

- [J56] H. Vandierendonck and D. Nikolopoulos, "Hyperqueues: Design and Implementation of Deterministic Concurrent Queues," *ACM Transactions on Parallel Computing*, pp. 1–35, Nov. 2019, Article 23.
- [J55] A. Hassan, H. Vandierendonck, and D. Nikolopoulos, "Fast and Energy-Efficient OLAP Data Management on Hybrid Main Memory Systems," *IEEE Transactions on Computers*, vol. 63, no. 11, pp. 1597–1611, Nov. 2019.
- [J54] I. Tsiokanos, L. Mukhanov, D. Nikolopoulos, and G. Karakonstantis, "Significance-Driven Data Truncation for Preventing Timing Failures," *IEEE Transactions on Device and Materials Reliability*, vol. 19, no. 1, pp. 25–36, Mar. 2019.
- [J53] K. Tovletoglou, L. Mukhanov, D. Nikolopoulos, and G. Karakonstantis, "Shimmer: Implementing a Heterogeneous-Reliability DRAM Framework on a Commodity Server," *IEEE Computer Architecture Letters*, vol. 18, no. 1, pp. 26–29, doi: [10.1109/LCA.2019.2893189](https://doi.org/10.1109/LCA.2019.2893189).
- [J52] U. Minhas, M. Russell, S. Kaloutsakis, P. Barber, R. Woods, G. Georgakoudis, C. Gillan, and D. Nikolopoulos, "NanoStreams: A Microserver Architecture for Real-Time Analytics on Fast Data Streams," *IEEE Transactions on MultiScale Computing Systems*, vol. 4, no. 3, pp. 396–409, 2018.
- [J51] J.-k. Lee, H. Vandierendonck, M. Arif, G. Peterson, and D. Nikolopoulos, "Energy-Efficient Iterative Refinement using Dynamic Precision," *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*, vol. 8, no. 4, pp. 722–735, Dec. 2018. doi: [10.1109/JETCAS.2018.2850665](https://doi.org/10.1109/JETCAS.2018.2850665).
- [J50] C. Gillan, A. Novakovic, A. Marshall, M. Shyamsundar, and D. Nikolopoulos, "Expediting Assessments of Database Performance for Streams of Respiratory Parameters," *Computers in Biology and Medicine*, vol. 100, no. 1, pp. 186–195, Sep. 2018.
- [J49] C. Reano, F. Silla, D. Nikolopoulos, and B. Varghese, "Intra-Node Memory Safe GPU Co-Scheduling," *IEEE Transactions on Parallel and Distributed Systems*, vol. 29, no. 5, pp. 1089–1102, 2018.
- [J48] P. Thoman, K. Dichev, T. Heller, *et al.*, "A Taxonomy of Task-Based Parallel Programming Technologies for High-Performance Computing," *The Journal of Supercomputing*, vol. 74, no. 4, pp. 1422–1434, Apr. 2018.
- [J47] C. Chalias, G. Georgakoudis, K. Tovletoglou, G. Karakonstantis, H. Vandierendonck, and D. Nikolopoulos, "DARE: Data Access Aware Refresh via Spatio-Temporal Application Resilience on Commodity Servers," *International Journal of High Performance Computing Applications*, vol. 32, no. 1, pp. 74–88, 2018. doi: [10.1177/1094342017718612](https://doi.org/10.1177/1094342017718612). [Online]. Available: <http://journals.sagepub.com/doi/10.1177/1094342017718612>.
- [J46] G. Karakonstantis, D. Nikolopoulos, D. Gizopoulos, P. Trancoso, Y. Sazeides, C. Antonopoulos, S. Venugopal, and S. Das, "Error-Resilient Server Ecosystems for Edge and Cloud Datacenters," *IEEE Computer*, vol. 50, no. 12, pp. 78–82, Dec. 2017.
- [J45] C. Black, O. Chevalier, S. Haughey, *et al.*, "A Real-Time Metabolomic Profiling Approach to Detecting Fish Fraud using Rapid Evaporative Ionization Mass Spectrometry," *Metabolomics*, vol. 13, no. 153, Nov. 2017. doi: [10.1007/s11306-017-1291-y](https://doi.org/10.1007/s11306-017-1291-y).
- [J44] G. Georgakoudis, H. Vandierendonck, P. Thoman, B. R. de Supinski, T. Fahringer, and D. Nikolopoulos, "SCALO: Scalability-Aware Parallelism Orchestration for Multi-Threaded Workloads," *ACM Transactions on Architecture and Code Optimization*, vol. 14, no. 4, 54:1–54:25, 2017.
- [J43] N. Wang, B. Varghese, M. Matthaiou, and D. Nikolopoulos, "ENORM: A Framework For Edge NNode Resource Management," *IEEE Transactions on Services Computing*, 2017, 10.1109/TSC.2017.2753775.
- [J42] C.-H. Hong, I. A. Spence, and D. Nikolopoulos, "FairGV: Fair and Fast GPU Virtualization," *IEEE Transactions on Parallel and Distributed Systems*, vol. 28, no. 12, pp. 3472–3485, Jun. 2017. doi: [10.1109/TPDS.2017.2717908](https://doi.org/10.1109/TPDS.2017.2717908).

- [J41] C.-H. Hong, I. Spence, and D. Nikolopoulos, "GPU Virtualization and Scheduling Methods: A Comprehensive Survey," *ACM Computing Surveys*, vol. 50, no. 3, 35:1–35:37, Jan. 2017, Article No. 35. DOI: [10.1145/3068281](https://doi.org/10.1145/3068281).
- [J40] L. Mukhanov, P. Petoumenos, Z. Wang, N. Parasyris, D. Nikolopoulos, B. de Supinski, and H. Leather, "ALEA: A Fine-Grain Energy Profiling Tool," *ACM Transactions on Architecture and Code Optimization*, vol. 14, no. 1, pp. 1–25, Nov. 2017. DOI: [10.1145/3050436](https://doi.org/10.1145/3050436).
- [J39] R. Montella, G. Giunta, G. Laccetti, M. Lapeгна, C. Palmieri, C. Ferraro, V. Pelliccia, C.-H. Hong, I. Spence, and D. S. Nikolopoulos, "On the Virtualization of CUDA based GPU Remoting on ARM and X86 Machines in the GVirtuS Framework," *International Journal of Parallel Programming*, vol. 45, no. 5, pp. 1142–1163, 2017, DOI: [10.1007/s10766-016-0462-1](https://doi.org/10.1007/s10766-016-0462-1).
- [J38] V. Vassiliadis, C. Chaliос, K. Parasyris, C. D. Antonopoulos, S. Lalis, N. Bellas, H. Vandierendonck, and D. Nikolopoulos, "Exploiting Significance of Computations for Energy-Constrained Approximate Computing," *International Journal of Parallel Programming*, vol. 44, no. 5, pp. 1078–1098, 2016.
- [J37] E. O'Neill, J. McGlone, P. Kilpatrick, and D. Nikolopoulos, "Managed Acceleration for In-Memory Database Analytic Workloads," *International Journal of Parallel, Emergent and Distributed Systems*, vol. 32, no. 4, pp. 406–427, May 2017. DOI: [10.1080/17445760.2016.1170832](https://doi.org/10.1080/17445760.2016.1170832).
- [J36] G. Georgakoudis, C. J. Gillan, A. Sayed, I. Spence, R. Faloоn, and D. S. Nikolopoulos, "Methods and Metrics for Fair Server Assessment under Real-Time Financial Workloads," *Concurrency and Computation: Practice and Experience*, vol. 28, no. 3, pp. 916–928, Mar. 2016.
- [J35] C. Chaliос, S. Catalán, E. S. Quintana-Orti, and D. S. Nikolopoulos, "Evaluating Asymmetric Multicore Systems-on-Chip and the Cost of Fault Tolerance using Iso-Metrics," *IET Computers & Digital Techniques*, vol. 10, no. 2, pp. 85–92, Feb. 2016.
- [J34] H. Vandierendonck, A. Hassan, and D. Nikolopoulos, "On The Energy-Efficiency of Byte-Addressable Non-Volatile Memory," *IEEE Computer Architecture Letters*, vol. 14, no. 2, pp. 144–147, Jul. 2015, DOI: [10.1109/LCA.2014.2355195](https://doi.org/10.1109/LCA.2014.2355195).
- [J33] G. Georgakoudis, C. J. Gillan, A. Sayed, I. Spence, R. Faloоn, and D. S. Nikolopoulos, "Iso-Quality of Service: Fairly Ranking Servers for Real-Time Data Analytics," *Parallel Processing Letters*, vol. 25, no. 3, 2015.
- [J32] A. Khasymski and D. S. Nikolopoulos, "Scalable Black-Box Prediction Models for Multi-Dimensional Adaptation on NUMA Multi-Cores," *International Journal of Parallel, Emergent and Distributed Systems*, vol. 30, no. 3, pp. 193–210, Apr. 2015.
- [J31] D. Nikolopoulos, H. Vandierendonck, N. Bellas, C. Antonopoulos, S. Lalis, G. Karakostas, A. Burg, and U. Naumann, "Energy Efficiency through Significance-Based Computing," *IEEE Computer*, vol. 47, pp. 82–85, 7 Jul. 2014.
- [J30] I. Manousakis, F. Zakkak, P. Pratikakis, and D. Nikolopoulos, "TProf: An Energy Profiler for Task-Parallel Programs," *Sustainable Computing: Informatics and Systems*, vol. 5, pp. 1–13, Mar. 2015.
- [J29] P. Gschwandtner, C. Chaliос, D. S. Nikolopoulos, H. Vandierendonck, and T. Fahringer, "On the Potential of Significance-Driven Execution for Energy-Aware HPC," *Computer Science – Research and Development*, vol. 30, no. 2, pp. 197–206, Feb. 2015.
- [J28] C. Symeonidou, P. Pratikakis, D. S. Nikolopoulos, and A. Bilas, "Distributed Region-Based Memory Allocation and Synchronization," *International Journal of High Performance Computing Applications*, vol. 28, no. 4, pp. 406–414, Nov. 2014.

- [J27] A. Papagiannis and D. Nikolopoulos, "Hybrid Address Spaces: A Methodology for Implementing Scalable High-Level Programming Models on Non-Coherent Many-core Architectures," *Journal of Systems and Software*, vol. 97, pp. 47–64, Nov. 2014.
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- [J25] H. Vandierendonck, G. Tzenakis, and D. Nikolopoulos, "Analysis of Dependence Tracking Algorithms for Task Dataflow Execution," *ACM Transactions on Architecture and Code Optimization*, vol. 10, no. 4, pp. 1–24, Dec. 2013, Article No. 61.
- [J24] D. Li, B. D. Supinski, M. Schulz, D. Nikolopoulos, and K. Cameron, "Strategies for Energy Efficient Resource Management of Hybrid Programming Models," *IEEE Transactions on Parallel and Distributed Systems*, vol. 24, no. 1, pp. 144–157, Jan. 2013.
- [J23] I. Manousakis and D. Nikolopoulos, "EPC: A Power Instrumentation Controller for Embedded Applications," *ACM SIGBED Review*, vol. 9, no. 2, pp. 28–32, Jun. 2012.
- [J22] C.-Y. Su, D. Li, D. Nikolopoulos, M. Grove, K. Cameron, and B. D. Supinski, "Critical Path-Based Thread Placement for NUMA Systems," *ACM SIGMETRICS Performance Evaluation Review*, vol. 40, no. 2, pp. 106–112, Sep. 2012.
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- [J20] M. M. Rafique, A. Butt, and D. Nikolopoulos, "A Capabilities-Aware Framework for Using Computational Accelerators in Data-Intensive Computing," *Journal of Parallel and Distributed Computing*, vol. 71, no. 2, pp. 185–197, Feb. 2011.
- [J19] R. Ferrer, P. Bellens, J. Yeom, *et al.*, "Parallel Programming Models for Heterogeneous Multi-Core Architectures," *IEEE Micro*, vol. 30, no. 5, pp. 42–53, Oct. 2010.
- [J18] M. Katevenis, V. Papaefstathiou, S. Kavadias, D. Pnevmatikatos, F. Silla, and D. Nikolopoulos, "Explicit Communication and Synchronization in SARC," *IEEE Micro*, vol. 30, no. 5, pp. 30–41, Oct. 2010.
- [J17] S. Schneider, J. Yeom, and D. Nikolopoulos, "Programming Multiprocessors with Explicitly Managed Memory Hierarchies," *IEEE Computer*, vol. 42, no. 12, pp. 28–34, Dec. 2009.
- [J16] C. Antonopoulos, F. Blagojevic, A. Chernikov, N. Chrisochoides, and D. Nikolopoulos, "A Multi-grain Delaunay Mesh Generation Method for Multicore SMT-based Architectures," *Journal of Parallel and Distributed Computing*, vol. 69, no. 7, pp. 589–600, Jul. 2009.
- [J15] C. Antonopoulos, F. Blagojevic, A. Chernikov, D. Nikolopoulos, and N. Chrisochoides, "Algorithm, Software, and Hardware Optimizations for Delaunay Mesh Generation on Simultaneous Multithreaded Architectures," *Journal of Parallel and Distributed Computing*, vol. 69, no. 7, pp. 601–612, Jul. 2009.
- [J14] M. Rafique, B. Rose, A. Butt, and D. Nikolopoulos, "Supporting MapReduce on Asymmetric Multi-core Clusters," *ACM SIGOPS Operating Systems Review*, vol. 43, no. 2, pp. 25–34, 2009.
- [J13] M. Curtis-Maury, F. Blagojevic, C. Antonopoulos, and D. Nikolopoulos, "Prediction-Based Power-Performance Adaptation of Multithreaded Scientific Codes," *IEEE Transactions on Parallel and Distributed Systems*, vol. 19, no. 10, pp. 1396–1410, Oct. 2008.
- [J12] F. Blagojevic, D. Nikolopoulos, A. Stamatakis, C. Antonopoulos, and M. Curtis-Maury, "Run-time Scheduling of Dynamic Parallelism on Accelerator-Based Multi-core Systems," *Parallel Computing*, vol. 33, no. 10–11, pp. 700–719, Nov. 2007.



- [J11] A. Stamatakis, F. Blagojevic, D. Nikolopoulos, and C. Antonopoulos, "Exploring new Search Algorithms and Hardware for Phylogenetics: RAxML meets the IBM Cell," *Journal of VLSI Signal Processing*, vol. 48, no. 3, pp. 271–286, Aug. 2007.
- [J10] R. Mills, C. Yue, A. Stathopoulos, and D. Nikolopoulos, "Runtime and Programming Support for Memory Adaptation in Scientific Applications via Local Disk and Remote Memory," *Journal of Grid Computing*, vol. 5, no. 2, pp. 213–234, Jun. 2007.
- [J9] D. Nikolopoulos, "Dynamic Tiling for Effective Use of Shared Caches on Multithreaded Processors," *International Journal of High Performance Computing and Networking*, vol. 2, no. 1, pp. 22–35, 2004.
- [J8] —, "Quantifying Contention and Balancing Memory Load on Hardware DSM Multiprocessors," *Journal of Parallel and Distributed Computing*, vol. 63, no. 9, pp. 866–886, Sep. 2003.
- [J7] D. Nikolopoulos and C. Polychronopoulos, "Adaptive Scheduling under Memory Constraints on Non-Dedicated Computational Farms," *Future Generation Computer Systems*, vol. 19, no. 4, pp. 505–519, May 2003.
- [J6] D. Nikolopoulos, E. Artiaga, E. Ayguadé, and J. Labarta, "Scaling Non-Regular Shared-Memory Codes by Reusing Custom Loop Schedules," *Scientific Programming*, vol. 11, no. 2, pp. 143–158, Apr. 2003.
- [J5] D. Nikolopoulos, E. Ayguadé, and C. Polychronopoulos, "Runtime vs. Manual Data Distribution for Architecture-Agnostic Shared-Memory Programming Models," *International Journal of Parallel Programming*, vol. 30, no. 4, pp. 225–254, Aug. 2002.
- [J4] D. Nikolopoulos, T. Papatheodorou, C. Polychronopoulos, J. Labarta, and E. Ayguadé, "Scheduler-Activated Dynamic Page Migration for Multiprogrammed DSM Multiprocessors," *Journal of Parallel and Distributed Computing*, vol. 62, no. 6, pp. 1069–1103, Jun. 2002.
- [J3] D. Nikolopoulos, E. Artiaga, E. Ayguadé, and J. Labarta, "Exploiting Memory Affinity in OpenMP through Schedule Reuse," *ACM Computer Architecture News*, vol. 29, no. 5, pp. 49–55, Dec. 2001.
- [J2] D. Nikolopoulos and T. Papatheodorou, "The Architectural and Operating System Implications on the Performance of Synchronization on ccNUMA Multiprocessors," *International Journal of Parallel Programming*, vol. 29, no. 3, pp. 249–282, Jun. 2001.
- [J1] D. Nikolopoulos, T. Papatheodorou, C. Polychronopoulos, J. Labarta, and E. Ayguadé, "A Transparent Runtime Data Distribution Engine for OpenMP," *Scientific Programming*, vol. 8, no. 3, pp. 143–162, Dec. 2000.

## Articles in Archival Conference Proceedings Refereed

- [C132] J. Liu, Z. Xie, D. Nikolopoulos, and D. Li, "Riann: Real-time incremental learning with approximate nearest neighbor on mobile devices," in *Proceedings of the 2020 USENIX Conference on Operational Machine Learning (OpML)*, Santa Clara, CA, Jul. 2020.
- [C131] K. Chen, P. Kilpatrick, D. Nikolopoulos, and B. Varghese, "Cross architectural power modeling," in *Proceedings of the 20th IEEE/ACM International Symposium on Cluster, Grid and Internet Computing (CCGRID)*, Melbourne, Australia, May 2020.
- [C130] A. Abubakar, S. Barbhuiya, D. Nikolopoulos, V. Ngo, and P. Kilpatrick, "Fast analysis and prediction in large scale virtual machines resource utilization," in *Proceedings of the 10th International Conference on Cloud Computing and Services Science (CLOSER)*, Prague, Czech Republic, May 2020.

- [C129] K. Tovletoglou, L. Mukhanov, D. Nikolopoulos, and G. Karakonstantis, "Heresy: Heterogeneous-reliability memory and qos-aware energy management on virtualized servers," in *Proceedings of the 2020 ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, Accepted, Lausanne, Switzerland, Mar. 2020.
- [C128] I. Tsiokanos, L. Mukhanov, G. Georgakoudis, D. Nikolopoulos, and G. Karakonstantis, "DEF-CON: Generating and Detecting Failure-Prone Instruction Sequences via Stochastic Search," in *Proceedings of the 2020 Design Automation and Test in Europe Conference (DATE)*, Accepted, **Best Paper Award**, Grenoble, France, Mar. 2020.
- [C127] S. Barbhuiya, P. Kilpatrick, and D. Nikolopoulos, "DroidLight: Lightweight Anomaly-Based Intrusion Detection System for Smartphone Devices," in *Proceedings of the 21st International Conference on Distributed Computing and Networking (ICDCN)*, Accepted, to appear, Kolkata, India, Jan. 2020.
- [C126] L. Mukhanov, K. Tovletoglou, H. Vandierendonck, D. Nikolopoulos, and G. Karakonstantis, "Comprehensive Workload-Aware DRAM Error Prediction using Machine Learning," in *Proceedings of the 2019 IEEE International Symposium on Workload Characterization (IISWC)*, Accepted, to appear, Orlando, FL, Nov. 2019.
- [C125] K. Dichev and D. Nikolopoulos, "Implementing Efficient Message Logging Protocols as MPI Application Extensions," in *Proceedings of the 26th International Conference on Recent Advances in Message Passing Interface EuroMPI*, Article 8, Zurich, Switzerland, Sep. 2019, pp. 1–11.
- [C124] W. Zhang, M. Price, T. Robinson, D. Nolan, D. Nikolopoulos, S. Barbhuiya, and S. Kyle, "Design Gene Representations for Emergent Innovative Design," in *Proceedings of the 17th International Manufacturing Research Conference (ICMR)*, **Best Paper Award Runner Up**, Belfast, UK, Sep. 2019, pp. 386–392.
- [C123] S. Barbhuiya, D. Nikolopoulos, M. Price, T. Robinson, D. Nolan, W. Zhang, and S. Kyle, "Smart-MaaS: A Framework for Smart Manufacturing-as-a-Service," in *Proceedings of the 17th International Manufacturing Research Conference (ICMR)*, **Best Paper Award**, Belfast, UK, Sep. 2019, pp. 1–16.
- [C122] G. Georgakoudis, I. Laguna, H. Vandierendonck, D. Nikolopoulos, and M. Schulz, "SAFIRE: Scalable and Accurate Fault Injection For Parallel Multithreaded Applications," in *Proceedings of the 33rd IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, Rio de Janeiro, Brazil, May 2019, pp. 890–899.
- [C121] J. Sun, H. Vandierendonck, and D. Nikolopoulos, "VEBO: A Vertex- and Edge-Balanced Ordering Heuristic to Load Balance Parallel Graph Processing," in *Proceedings of the 2019 ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP)*, Washington, DC, USA, Feb. 2019, pp. 391–392.
- [C120] R. Istrate, F. Sheidegger, G. Mariani, D. Nikolopoulos, C. Bekas, and C. Malossi, "TAPAS: Train-Less Accuracy Predictor for Architecture Search," in *Proceedings of the 33rd AAAI International Conference on Artificial Intelligence (AAAI)*, Honolulu, Hawaii, Jan. 2019, pp. 3927–3934.
- [C119] D. Fenacci, H. Vandierendonck, and D. Nikolopoulos, "Code and Data Transformations to Address Garbage Collector Performance in Big Data Processing," in *Proceedings of the 25th IEEE International Conference on High Performance Computing, Data, and Analytics (HiPC)*, Bangalore, India, Dec. 2018.
- [C118] B. Wang, H. Vandierendonck, G. Karakonstantis, and D. Nikolopoulos, "Userspace Hypervisor Data Characterization in Virtualized Environment," in *Proceedings of the 24th IEEE International Conference on Parallel and Distributed Systems (ICPADS)*, Singapore, Dec. 2018, pp. 638–645.

- [C117] K. Dichev, K. Cameron, and D. Nikolopoulos, “Energy-Efficient Localized Rollback after Failures via Data Flow Analysis,” in *Proceedings of the 25th International Conference on Recent Advances in Message Passing Interface (EuroMPI)*, Barcelona, Spain, Sep. 2018.
- [C116] E. Barlasakar, K. Dichev, I. Spence, P. Kilpatrick, and D. Nikolopoulos, “Supporting Cloud IaaS Users in Detecting Performance-based Violation for Streaming Applications,” in *Proceedings of the 15th IEEE International Conference on Autonomic Computing (ICAC)*, Trento, Italy, Sep. 2018.
- [C115] I. Tsiokanos, L. Mukhanov, D. Nikolopoulos, and G. Karakonstantis, “Variation-Aware Pipelined Cores through Path Shaping and Dynamic Cycle Adjustment: Case Study on a Floating-Point Unit,” in *Proceedings of the 2018 IEEE/ACM International Symposium on Low Power Electronics and Design (ISLPED)*, Washington, DC, USA, Jul. 2018, 52:1–52:6.
- [C114] —, “Minimization of Timing Failures in Pipelined Designs via Path Shaping and Operand Truncation,” in *Proceedings of the 24th IEEE International Symposium on On-Line Testing and Robust System Design (IOLTS)*, Costa Brava, Spain, Jul. 2018.
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- [P6] V. Vassiliadis, K. Parasyris, C. D. Antonopoulos, N. Bellas, S. Lalis, U. Naumann, J. Riehme, J. Deussen, and D. S. Nikolopoulos, "SCoRPiO: Significance Based Computing for Reliability and Power Optimization," in *Proceedings of the 2016 International Symposium on Code Generation and Optimization (CGO)*, Barcelona, Spain, Mar. 2016.

- [P5] F. S. Zakkak, D. Chassapis, P. Pratikakis, D. S. Nikolopoulos, and A. Bilas, *C Source Level Transformations & Optimizations for Task-Based Parallelism*, Student Poster Session, 2011 International Symposium on Code Generation and Optimization (CGO), Chamonix, France, Apr. 2011.
- [P4] D. Li, K. Cameron, D. Nikolopoulos, M. Schulz, and B. D. Supinski, *Model-Based Hybrid MPI/OpenMP Power-Aware Computing*, Poster Session, ACM/IEEE Supercomputing'2009: High-performance Computing, Networking, Storage and Analysis (SC), Portland, OR, USA, Nov. 2009.
- [P3] M. Rafique, A. Butt, and D. Nikolopoulos, "Supporting I/O-intensive Workloads on the Cell Architecture," Presented in 6th USENIX Conference on File and Storage Systems (FAST), San Jose, CA, USA, Feb. 2008.
- [P2] F. Blagojevic, C. Iancu, K. A. Yelick, D. Nikolopoulos, B. Rose, and M. Curtis-Maury, *Scheduling Dynamic Parallelism on the Cell BE*, Proceedings of the 15th Meeting of the IBM HPC Systems Scientific Computing User Group (SCICOMP), Barcelona, Spain, May 2009.
- [P1] M. Yankelevsky, W. Ko, D. Nikolopoulos, and C. Polychronopoulos, *Using Machine Descriptors to Select Parallelization Models and Strategies on Hierarchical Systems*, Poster Session, ACM/IEEE Supercomputing'2001: High Performance Networking and Computing Conference (SC), Denver, CO, USA, Nov. 2001.

## Edited Proceedings Volumes

- [EV9] C. D. Antonopoulos and D. S. Nikolopoulos, "MiniSymposium on Edge Computing," in *Parallel Computing is Everywhere, Proceedings of the International Conference on Parallel Computing, ParCo 2017, 12-15 September 2017, Bologna, Italy*, 2017, p. 783. doi: [10.3233/978-1-61499-843-3-783](https://doi.org/10.3233/978-1-61499-843-3-783). [Online]. Available: <https://doi.org/10.3233/978-1-61499-843-3-783>.
- [EV8] K. Cameron, T. Gamblin, and D. S. Nikolopoulos, Eds., *VarSys Introduction. First IEEE International Workshop on Variability in Parallel and Distributed Systems*. Held in conjunction with the 2016 IEEE International Parallel and Distributed Processing Symposium, Chicago, IL, 2016, p. 1068.
- [EV7] D. Nikolopoulos and C. Antonopoulos, Eds., *Mini-Symposium on Energy and Resilience in Parallel Programming, Parallel Computing on the Road to Exascale, Proceedings of the International Conference on Parallel Computing, ParCo 2015*, Edinburgh, Scotland, Sep. 2015, pp. 709–709. doi: [10.3233/978-1-61499-621-7-709](https://doi.org/10.3233/978-1-61499-621-7-709).
- [EV6] J. L. Núñez-Yáñez, J. M. Moreno, and D. S. Nikolopoulos, "Guest Editorial: Special Issue on Energy Efficient Computing with Adaptive and Heterogeneous Architectures," *IET Computers & Digital Techniques*, vol. 9, no. 1, pp. 1–2, 2015. doi: [10.1049/iet-cdt.2014.0215](https://doi.org/10.1049/iet-cdt.2014.0215). [Online]. Available: <http://dx.doi.org/10.1049/iet-cdt.2014.0215>.
- [EV5] K. W. Cameron, A. Hoisie, D. K. Lowenthal, D. S. Nikolopoulos, S. Yalamanchili, L. Carrington, and J. Manzano, in *Proceedings of the 3rd International Workshop on Energy Efficient Supercomputing, (E2SC'15)*, ISBN 978-1-4503-3994-0, Austin, Texas, USA: IEEE, Nov. 2015.
- [EV4] K. W. Cameron, A. Hoisie, D. K. Lowenthal, D. S. Nikolopoulos, S. Yalamanchili, and A. Marquez, in *Proceedings of the 2nd International Workshop on Energy Efficient Supercomputing, (E2SC'14)*, ISBN 978-1-4799-7036-0, New Orleans, Louisiana, USA: IEEE, Nov. 2014.
- [EV3] B. R. de Supinski, B. Krammer, K. Furlinger, J. Labarta, and D. S. Nikolopoulos, "Topic 1: Support Tools and Environments - (Introduction)," in *Euro-Par 2013 Parallel Processing - 19th International Conference, Aachen, Germany, August 26-30, 2013. Proceedings*, F. Wolf, B. Mohr, and D. an Mey, Eds., ser. Lecture Notes in Computer Science, vol. 8097, 2013, p. 3.
- [EV2] A. Ramírez, D. S. Nikolopoulos, D. R. Kaeli, and S. Matsuoka, "Topic 16: GPU and Accelerators Computing," in *Euro-Par 2012 Parallel Processing - 18th International Conference, Euro-Par 2012, Rhodes Island, Greece, August 27-31, 2012. Proceedings*, ser. Lecture Notes in Computer Science, vol. 7484, Aug. 2012, pp. 857–858.

- [EV1] Y. Cotronis, A. Danalis, D. S. Nikolopoulos, and J. Dongarra, Eds., *Recent Advances in the Message Passing Interface - 18th European MPI Users' Group Meeting, EuroMPI 2011*. *Proceedings*, Lecture Notes in Computer Science, vol. 6960, Santorini, Greece: Springer, Sep. 18–21, 2011.

## Keynote Talks Invited

- [K8] D. Nikolopoulos, "AVA: Accelerator Virtualization Anywhere," in *Proceedings of the 13th Workshop on Virtualization in High-Performance Cloud Computing (VHPC)*, Jun. 2018.
- [K7] —, "Energy Efficient Computing using Computational Significance Abstractions," in *UK-China Workshop on Shaping Low Carbon Energy Future*, Keynote talk, Belfast, UK, Aug. 2016.
- [K6] —, "Using Computational Significance and Resilience in System Software Stacks," in *First Workshop on Energy-Aware High Performance Computing*, Keynote talk. Held in conjunction with the 2016 International Supercomputing Conference (**ISC**), Frankfurt, Germany, Jun. 2016.
- [K5] —, "Why Energy-Efficient High Performance Computing is Harder than Energy-Efficient Embedded Computing," in *Workshop on Power & Energy-Aware High Performance Computing on Emerging Technology*, Keynote talk. Held in conjunction with the 2015 International Supercomputing Conference (**ISC**), Frankfurt, Germany, Jul. 2015.
- [K4] —, "Programming the Energy Efficiency of HPC Systems," in *Proceedings of the 4th International Conference on Energy-Aware High Performance Computing*, **Keynote Talk**, Dresden, Germany, Sep. 2013.
- [K3] —, "Connecting the Dots between Parallel Programming and Energy," in *Proceedings of the 21st Euromicro International Conference on Parallel, Distributed and Network-Based Processing*, **Keynote Talk**, Belfast, Northern Ireland, UK, Mar. 2013.
- [K2] —, "To Program or not to Program the Memory Hierarchy?" In *Fourth Workshop on Programmability Issues for Heterogeneous Multicores (MULTIPROG)*, **Keynote Address**, Heraklion, Greece, Jan. 2011.
- [K1] —, "Facing the Challenges of Multicore Processor Technologies using Autonomic System Software," in *Proceedings of the 7th Workshop on Parallel and Distributed Scientific and Engineering Computing with Applications (PDSEC)*, Held in conjunction with the 20th IEEE International Parallel and Distributed Processing Symposium (IPDPS), 1pp., **Keynote Address**, Rhodes, Greece, Apr. 2006.

## Invited Papers

- [I17] D. Nikolopoulos, "New Approaches to Memory Reliability Management for Big Data Workloads," in *Abstracts of the 2018 SIAM Conference on Parallel Processing for Scientific Computing (SIAM PP)*, Tokyo, Japan, Mar. 2018.
- [I16] —, "NanoStreams: A Hardware and Software Stack for Real-Time Analytics on Fast Data Streams," *HiPEAC Info*, no. 38, pp. 15–16, May 2014.
- [I15] —, "Reconciling Explicit with Implicit Parallelism," in *Abstracts of the 2012 SIAM Conference on Parallel Processing for Scientific Computing (SIAM PP)*, Savannah, Georgia, USA, Feb. 2012.
- [I14] —, "Region-Based Memory Management for Task Dataflow Models," in *Joint ENCORE & PEPPER Workshop on Programmability and Portability for Emerging Architectures (EPoPPEA)*, Held in conjunction with the 7th International Conference on High Performance and Embedded Architectures and Compilers (HIPEAC), Paris, France, Jan. 2012.
- [I13] M. Duranton *et al.*, "Computing Systems: Research Challenges Ahead: The HiPEAC Vision 2011/2012," Tech. Rep., 2011.

- [I12] J. Kesapides, D. Nikolopoulos, and A. Bilas, "ADAM: Automatic Dependence Analysis & Monitoring," in *Proceedings of the Sixth International Summer School on Advanced Computer Architecture and Compilation for Embedded Systems (ACACES)*, 4pp, Barcelona, Spain, Jul. 2010.
- [I11] D. Nikolopoulos, "Green Building Blocks: Software Stacks for Energy-efficient Clusters and Data Centres," *ERCIM News*, no. 79, pp. 29–30, Oct. 2009.
- [I10] D. Nikolopoulos and M. Katevenis, "Processors: The Challenge of Cooperation," *Economist*, no. 71, Dec. 2009, In Greek.
- [I9] M. Alvanos, G. Tzenakis, D. Nikolopoulos, and A. Bilas, "Parallelization and Performance of an H.264 Video Encoder on the Cell B.E.," in *Proceedings of the Fifth International Summer School on Advanced Computer Architecture and Compilation for Embedded Systems (ACACES)*, 4pp, Barcelona, Spain, Jul. 2009.
- [I8] D. Nikolopoulos, "Set-top Supercomputing: Scalable Software for Scientific Simulations on Game Consoles," *ERCIM News*, no. 74, pp. 44–45, Jul. 2008.
- [I7] —, "Unified Scheduling of Polymorphic Parallelism on the Cell Processor," in *Abstracts of the 2008 SIAM Conference on Parallel Processing for Scientific Computing, Miniworkshop on the Cell Processor (SIAM PP)*, Atlanta, GA, USA, Mar. 2008.
- [I6] —, "System Software Challenges and Opportunities on Asymmetric Multi-core Processors," in *Proceedings of the 2007 Fall Creek Falls Conference – Panel on Key Challenges Presented by Next Generation Hardware Systems*, Nashville, TN, USA, Sep. 2007.
- [I5] F. Blagojevic and D. Nikolopoulos, *Exploring Programming Models and Optimizations for the Cell Broadband Engine using RAXML*, 2006 Virginia Tech **High-End Computing Challenge**, 14 pp. **Awarded Best Entry for Performance**, Sep. 2006.
- [I4] C. Antonopoulos, N. Chrisochoides, and D. Nikolopoulos, "2-D Parallel Constrained Delaunay Mesh Generation: A Multigrain Approach on Deep Multiprocessors," in *Abstracts of the Workshop in Programming Models for HPCS Ultra-Scale Applications (PMUA)*, Held in conjunction with the 19th ACM International Conference on Supercomputing (ICS). Invited presentation, Cambridge, MA, USA, Jun. 2005.
- [I3] —, "Exploiting Simultaneous Multithreading for Parallel Mesh Generation: A Multigrain Approach on Deep Multiprocessors," in *13th International Meshing Roundtable (IMR), Poster Session*, Williamsburg, VA, USA, Sep. 2004.
- [I2] D. Nikolopoulos and A. Stathopoulos, "Application Awareness in Adaptation Middleware: Balancing Transparency with Performance and Adaptivity," in *Abstracts of the 2004 SIAM Conference on Parallel Processing for Scientific Computing (SIAM PP), Miniworkshop on Adaptivity in Parallel and Distributed Computing through Interoperating Systems and Applications*, 1 pp, San Francisco, CA, USA, Feb. 2004.
- [I1] D. Nikolopoulos, "Programming Environments for Multigrain Parallelization," in *Abstracts of the 2003 EURESCO Conference on Advanced Environments and Tools for High-Performance Computing*, Invited presentation, Albufeira, Portugal, Jun. 2003.

## Theses

- [T2] D. Nikolopoulos, "System Software Support for Reducing Memory Latency on CC-NUMA Architectures," PhD Dissertation, Department of Computer Engineering and Informatics, University of Patras, Dec. 2000.
- [T1] D. Nikolopoulos and I. Tsolakis, "Load Balancing in Volunteer Computing Clusters," MSc Thesis, Department of Computer Engineering and Informatics, University of Patras, Jul. 1997.



## Publication Metrics

### Citation metrics (Google Scholar)

Citations: 4492, h-index: 34, i-10 index: 113

### Citation metrics (Semantic Scholar)

3173, h-index: 29

### Citation metrics (Scopus)

2189, h-index: 23, i-10 index: 61

## Knowledge and Technology Transfer & Commercialisation

### Patents

1. "Optimizing DRAM memory based on read-to-write ratio of memory access latency," US Patent 10365997, Granted Jul. 30, 2019.
2. "Source code profiling for line-level latency and energy consumption estimation," US Patent 10474557, Granted Nov. 12, 2019.
3. "Detecting sequential access data and random access data for placement on hybrid main memory for in-memory databases," US Patent 10387127, Granted Aug. 20, 2019.

### Technology Transfer

1. Train-less deep neural network architecture search **IBM Watson Studio** (2019)
2. Query planning and data placement for in-memory transactional-analytical databases **SAP** (2019)
3. Accelerator virtualization software for FPGAs and GPUs **Maxeler, AWS** (2018)
4. High-level program parallelization software for FPGAs **Crevinn** (2019)
5. Query planning and data placement for in-memory transactional-analytical databases **SAP** (2019)
6. Automatic scaling of streaming operators, **IBM** (2010)

## Research Grants

Total amount of research awards as Principal Investigator or CoInvestigator: **\$101.665 million**

Owned share of research awards: **\$34.800 million**

47. **Belfast Region City Deal, Queen's Global Innovation Institute & Real-time AI Supercomputer**  
Sponsor: UK Treasury, 77%, Belfast City Council 23%. Role: PI. Grant amount: £56,000,000. CoI grant share: £15,000,000. Dates of activity 01/2019–12/2018.
46. **Biohaviour: Building the Blind Watchmaker**. Sponsor: EPSRC. Grant ID: EP/R003564/1. Role: CoI. Grant amount: £778,226. CoI grant share: £194,556. Dates of activity 01/2018–06/2021.
45. **Variability in Computing Systems**. Sponsor: Royal Academy of Engineering, Distinguished Visiting Fellowships. Role: Host PI (Kirk Cameron, Visiting Fellow). Grant amount: £4,100. Dates of activity 8/2017–7/2018.
44. **Scalable, Virtualized Data Centre Acceleration**. Sponsor: Intel. Role: CoI. Grant amount: £3,945. CoI grant share: £795. Dates of activity 1/2017–12/2020.

43. **OPRECOMP: Open Transprecision Computing.** Sponsor: EU, Horizon 2020. Grant ID: H2020-732631. Role: PI. Grant amount: €5,999,510 (£5,091,933). QUB and PI grant share: €705,625 (£599,781). Dates of activity 1/2017–12/2020.
42. **UNISERVER: A Universal Micro-server Ecosystem by Exceeding the Energy and Performance Scaling Boundaries.** Sponsor: EU, Horizon 2020. Grant ID: H2020-688540. Role: CoI. Grant amount: €4,815,810 (£4,333,717). QUB and PI grant share: €322,648 (£222,516). Dates of activity 2/2016–1/2019.
41. **VINEYARD: Versatile Integrated Accelerator-based Heterogeneous Datacentres.** Sponsor: EU, Horizon 2020. Grant ID: H2020-687628. Role: PI. Grant amount: €6,283,895 (£4,467,972). QUB and PI grant share: €663,625 (£471,850). Dates of activity 2/2016–1/2019.
40. **Principles and Practice of Near Data Computing.** Sponsor: Royal Society Wolfson Research Merit Award. Grant ID: WM150009. Role: PI. Grant amount and QUB grant share : £50,000. Dates of activity 10/2015–9/2020.
39. **Meeting the Future Challenges of Heterogeneous and Extreme Scale Parallel Computing.** Sponsor: SFI-DEL, Investigator Awards. Grant ID: 14/IA/2474. Role: PI. Grant amount and QUB grant share : £521,947. Dates of activity 9/2015–9/2018.
38. **ECOSCALE: Energy Efficient Heterogeneous Computing at Exascale.** Sponsor: EU, Horizon 2020. Grant ID: H2020-671632. Role: PI. Grant amount: €4,237,398 (£2,922,346). QUB and PI grant share: €696,750 (£480,518). Dates of activity 10/2015–10/2018.
37. **ALLScale: An Exascale Programming, Multi-objective Optimization and Resilience Management Environment Based on Nested Recursive Parallelism.** Sponsor: EU, Horizon 2020. Grant ID: H2020-671603. Role: PI. Grant amount: €3,366,196 (£2,463,217). QUB and PI grant share: €438,578 (£320,930). Dates of activity 10/2015–10/2018.
36. **Crevinn Teoranta OpenCL Knowledge Transfer** Sponsor: Knowledge Transfer Partnership / Inter-trade Ireland Fusion Project Grant ID: Role: PI. Grant amount: £39,000. Dates of activity 08/2015–09/2017
35. **SERT: Scale-Free, Energy-Efficient and Resilient CSE Software for Mega-Core Systems.** Sponsor: EPSRC (Software for the Future II). Grant ID: EP/M01147X/1. Role: PI. Grant amount: £963,929. QUB and PI grant share: £694,909. Dates of activity 3/2015–3/2018.
34. **RAPID: Heterogeneous Secure Multi-level Remote Acceleration Service for Low-Power Integrated Systems and Devices.** Sponsor: EU, Horizon 2020. Grant ID: H2020-644312. Role: PI. Grant amount: €2,203,800 (£1,695,231). QUB and PI grant share: €326,925 (£251,481). Dates of activity 01/2015–01/2018.
33. **DIVIDEND: Distributed Heterogeneous Vertically Integrated Energy Efficient Data Centres.** Sponsor: EPSRC, CHIST-ERA. Grant ID: EP/M015742/1. Role: PI. Grant amount: €1,346,885 (£1,077,508). QUB and PI grant share: €279,646 (£223,717). Dates of activity 01/2015–01/2018.
32. **HPDCJ: Heterogeneous Parallel and Distributed Computing with Java.** Sponsor: EPSRC, CHIST-ERA. Grant ID: EP/M015750/1 Role: PI. Grant amount: €1,721,010 (£1,376,808). QUB and PI grant share: €178,159 (£142,527). Dates of activity 10/2014–10/2017.
31. **ASAP: An Adaptive, Highly Scalable Analytics Platform** Sponsor: European Commission, FP7-ICT. Grant ID: FP7-619706. Role: Co-PI. Grant amount: €2,245,128 (£1,909,122). QUB grant share: €407,720 (£346,701). Co-PI grant share: €183,548 (£156,078). Dates of activity: 3/2014–3/2017.



30. **US-Ireland R&D Partnership Planning Grant: Cloud based Electronic Integration of Patient Records (CLEAR)** Grant ID: PG20 Role: PI Grant amount: £1,356 QUB grant share: £1,356. PI grant share: £1,356. Dates of activity: 1/2014–2/2014.
29. **ENPOWER: Energy-Proportional Computing with Heterogeneous and Reconfigurable Processors** Sponsor: EPSRC. Grant ID: EP/L004232/1. Role: PI. Grant amount: £741,043. QUB grant share: £348,325. PI grant share: £174,163. Dates of activity: 10/2013–10/2016.
28. **ALEA: Abstraction-Level Energy Accounting and Optimization in Many-Core Programming Languages** Sponsor: EPSRC, System Approaches to Distributed and Embedded Architectures. Grant ID: EP/L000555/1. Role: Coordinator & PI. Grant amount: £669,561. QUB grant share: £394,025. PI grant share: £359,377. Dates of activity: 9/2013–9/2016.
27. **NanoStreams: A Hardware and Software Stack for Real-Time Analytics on Fast Data Streams.** Sponsor: European Commission, FP7-ICT, Objective 3.4 Advanced Computing, Embedded and Control Systems. Grant ID: FP7-610509. Role: Coordinator & PI. Grant amount: €3,300,000. QUB grant share: €723,565. PI grant share: €470,317. Dates of activity: 9/2013–9/2016.
26. **CACTOS: Context-Aware Cloud Topology Optimization and Simulation.** Sponsor: European Commission, FP7-ICT, Objective 1.2: Software Engineering, Services and Cloud Computing. Grant ID: FP7-610811. Role: PI. Grant amount: €3,215,751. QUB grant share: €583,330. PI grant share: €243,600. Dates of activity: 10/2013–10/2016.
25. **SAP: PhD Project on High Availability for Petascale Systems.** Sponsor: SAP AG. Grant ID: UK-2013-009. Role: PI. Grant amount: £12,436. QUB grant share: £12,436. PI grant share: £12,436. Dates of activity: 08/2013–08/2019.
24. **SCORPIO: Significance-Based Computing for Reliability and Power Optimization.** Sponsor: European Commission, FP7-FET-Open. Grant ID: FP7-323872. Role: PI. QUB Grant amount: €1,890,775. QUB and PI grant share: €273,400. Dates of activity: 06/2013–06/2016.
23. **NovoSoft: Software Management of Non-Volatile Memory Hierarchies.** Sponsor: European Commission, Marie Curie Intra-European Fellowship. Grant ID: FP7-327744. Role: Scientist in Charge (Hans Vandierendonck, PI and ERC Marie Curie Fellow). Grant amount: €309,235. Dates of activity: 04/2013–04/2015.
22. **Characterizing and Optimizing In-Memory Database Systems for Emerging Memory Technologies.** Sponsor: SAP UK Limited. Grant ID: R502. Role: Co-PI with Hans Vandierendonck PI. Grant amount: £34,298. Co-PI grant share: £17,149. Dates of activity: 03/2013–03/2016.
21. **GEMSCCLAIM: Greener Mobile Systems by Cross Layer Integrated Energy Management.** Sponsor: EPSRC, CHIST-ERA. Grant ID: EP/K017594/1. Role: PI. Grant amount: €1,776,688. QUB and PI grant share: €436,884. Dates of activity 09/2012–09/2015.
20. **Exascale Mesh Generation Runtime Systems.** Sponsor: Royal Academy of Engineering, Distinguished Visiting Fellowships. Role: Host PI (Nikos Chrisochoides, Visiting Fellow). Grant amount: £4,100. Dates of activity 11/2012–06/2013.
19. **HOLISTIC: Hardware and Software Techniques for Multicore Processor Architectures Reliability Enhancement.** Sponsor: Greek Ministry of Education, Lifelong Learning and Religious Affairs, Thales Programme, grant ID: 1103. Role: PI with Manolis Katevenis (co-PI). Grant amount: €600,000. FORTH-ICS and PI grant share: €98,000. Dates of activity: 01/2012–01/2016.

18. **SCC-MR: Scalable and Energy-Efficient Runtime Support for the MapReduce Programming Model on the Intel SCC.** Sponsor: Intel Corporation. Equipment Donation. Role: PI. Dates of activity: 03/2010–03/2012.
17. **TEXT: Towards Exascale Applications.** Sponsor: European Commission, FP7-INFRASTRUCTURES Programme. Grant ID: ICT-261580. Role: PI. Grant amount: €2,470,000. FORTH-ICS and PI grant share: €299,364. Dates of activity: 06/2010–09/2012.
16. **ReMap: Rearchitecting MapReduce for Multicore Systems with Explicit Communication.** Sponsor: High Performance and Embedded Architectures and Compilers Network of Excellence, Cluster Collaboration Grant. Grant ID: ICT-217068. Role: PI with Eduard Ayguadé co-PI. FORTH-ICS and PI grant share: €3,000. Dates of activity: 06/2010–06/2011.
15. **ENCORE: Enabling Technologies for a Programmable Many-core.** Sponsor: European Commission, FP7-ICT, Objective 3.4: Advanced Computing, Embedded and Control Systems. Grant ID: ICT-248647. Role: co-PI with Manolis Katevenis (PI). Grant amount: €2,533,000. FORTH-ICS grant share: €533,000. co-PI grant share: €266,500. Dates of activity: 03/2010–03/2013.
14. **Coupled Models of Diffusion and Individual Behavior over Extremely Large Scale Social Networks.** Sponsor: NSF OCI PetaApps Program. Grant ID: OCI-0904844. Role: co-PI with Madhav Marathe (PI), Keith Bisset and Xizhou Feng (co-PIs). Grant amount: \$1,182,798. Co-PI grant share: \$200,000. Dates of activity: 08/2009–08/2013.
13. **I-Cores: Hypervisor-based Synthesis of Custom Execution Environments for Multi-core Systems.** Sponsor: European Commission, FP7 Programme, Marie Curie International Reintegration Grants. Grant ID: IRG-224759. Role: PI. Grant amount: €100,000. Dates of activity: 01/2009–01/2013.
12. **HiPEAC Fellowship: Runtime Systems for Parallel Programming.** Sponsor: European Commission, FP7 Programme, European Network of Excellence in High Performance and Embedded Architectures. Grant ID: ICT-217068. Role PI, hosted by Manolis Katevenis. FORTH-ICS and PI share: €8,600. Dates of activity: 01/2008–02/2008.
11. **VT-ASOS: Virtualization Technologies for Application-Specific Operating Systems on Many-Core HPC Systems.** Sponsor: NSF Computer Systems Research Program. Grant ID: CNS-0720673. Role: PI, with Godmar Back (Co-PI). Grant amount: \$300,000. PI grant share: \$150,000. Dates of activity: 07/2007–07/2010.
10. **Thermal Conductors: Runtime Software Support for Proactive Heat Management in Advanced Execution Systems.** Sponsor: NSF Computer Systems Research Program. Grant ID: CNS-0720750. Role: co-PI with Kirk W. Cameron (PI). Grant amount: \$350,000. co-PI grant share: \$175,000. Dates of activity: 07/2007–07/2010.
9. **Models and Adaptive Runtime Systems for Accessible Parallel Programming on IBM Multi-Core Systems.** Sponsor: IBM Faculty Award Program, Grant ID: VTF-874197. Role: PI. Grant amount: \$15,000. Dates of activity: 05/2007–05/2008.
8. **MISER: A High-Performance, Power-Aware Cluster.** Sponsor: NSF Computing Research Infrastructure Program. Grant ID: CNS-0709025. Role: co-PI with Kirk W. Cameron (PI) and Adrian Sandu (Co-PI). Grant amount: \$500,000. co-PI grant share: \$166,667. Dates of activity: 07/2007–07/2008.
7. **Faculty Startup Grant.** Sponsor: Virginia Tech. Role: PI. Grant amount: \$100,000. Dates of activity: 08/2006–08/2007.

6. **MELISSES: Liquid Services for Scalable Multithreaded and Multicore Execution on Emerging Supercomputers.** Sponsor: DOE Early Career Principal Investigator Award Program. Grant ID: DE-FG02-06ER25751, DE-FG02-05ER25689. Role: PI. Grant amount: \$299,907. Dates of activity: 08/2005–08/2008.
5. **Acquisition of STEMS: A Laboratory for End-to-End Development of Software and Tools for Emerging Multigrain Supercomputers.** Sponsor: NSF Major Research Instrumentation Program. Grant ID: CNS-0521381. Role: PI with Nikos Chrisochoides (co-PI) and Bruce Lowekamp (co-PI). Grant amount: \$228,134. PI grant share: \$76,045. Dates of activity: 05/2005–05/2008.
4. **A Unified Framework for Multilevel Parallelization on Deep Computing Systems.** Sponsor: NSF Research Experiences for Undergraduates Program. Grant ID: CCF-0531887. Role: PI. Grant amount: \$6,000. Dates of activity: 05/2005–08/2005.
3. **A Unified Framework for Multilevel Parallelization on Deep Computing Systems.** Sponsor: NSF CAREER Award Program. Grant ID: CCF-0346867, CCF-0715051. Role: PI. Grant amount: \$419,835. Dates of activity: 01/2004–01/2009.
2. **An Application-Driven Approach for Runtime Scheduling of Multigrain Adaptive Computations.** Sponsor: NSF ITR Program. Grant ID: ACI-0312980. Role: co-PI with Nikos Chrisochoides (PI). Grant amount: \$450,000. co-PI grant share: \$225,000. Dates of activity: 09/2003–09/2006.
1. **Faculty Startup Grant.** Sponsor: College of William and Mary. Role: PI. Grant amount: \$100,000. Dates of activity: 08/2002–08/2004.

## Education

### Courses Taught

Fall'20 ECE5510: Multiprocessor Programming, Virginia Tech (Teaching Effectiveness: 5.16/6.00, Class Size: 82)

Spring'20 CS2506: Computer Organization II, Virginia Tech

Spring'15 ECS 1002: Design Projects, Queen's University of Belfast

Fall'15, ECS 2001: Second Stage Design Projects, Queen's University of Belfast

Spring'14 ECS 1002: Design Projects, Queen's University of Belfast

Fall'13 ECS 2001: Second Stage Design Projects, Queen's University of Belfast

Spring'13 ECS 1002: Design Projects, Queen's University of Belfast

Fall'12 ECS 2001: Second Stage Design Projects, Queen's University of Belfast

Fall'11 CS425: Computer Systems Architecture, University of Crete

Fall'11 CS100: Introduction to Computer Science, University of Crete

Spring'11 CS225: Computer Organization, University of Crete

Spring'11 CS529: Multi-core Systems Programming, University of Crete

Fall'10 CS425: Computer Systems Architecture, University of Crete

Spring'10 CS225: Computer Organization, University of Crete

Spring'10 CS529: Multi-core Systems Programming, University of Crete

Fall'09 CS425: Computer Systems Architecture, University of Crete

Spring'09 CS529: Multi-core Systems Programming, University of Crete

Spring'09 CS225: Computer Organization, University of Crete

Fall'08 CS425: Computer Systems Architecture, University of Crete

Spring'08 CS425: Computer Systems Architecture, University of Crete

Fall'07 CS5234: Advanced Parallel Computation, Virginia Tech

Fall'07 CS2504: Introduction to Computer Organization, Virginia Tech

Spring'07 CS2504: Introduction to Computer Organization, Virginia Tech

Fall'06 CS4234: Parallel Computation, Virginia Tech  
 Spring'06 CSCI644: Advanced Computer Architecture, College of William and Mary  
 Fall'05 CSCI444/544: Principles of Operating Systems, College of William and Mary  
 Spring'05 CSCI644: Advanced Computer Architecture, College of William and Mary  
 Fall'04 CSCI444/544: Principles of Operating Systems, College of William and Mary  
 Spring'04 CSCI644: Advanced Computer Architecture, College of William and Mary  
 Fall'03 CSCI444/544: Principles of Operating Systems, College of William and Mary  
 Spring'03 CSCI644: Advanced Computer Architecture, College of William and Mary  
 Fall'02 CSCI444/544: Principles of Operating Systems, College of William and Mary  
 Spring'02 ECE291: Computer Engineering II, University of Illinois at Urbana-Champaign

### Seminars Taught

Spring'12 Implementation of Multi-core Programming Models, Universitat Politècnica de Catalunya  
 Spring'10 Multi-core Systems Programming and Optimization, Universitat Politècnica de Catalunya  
 Spring'08 Multi-core Systems Programming and Optimization, Universitat Politècnica de Catalunya  
 Spring'07 Multi-core Systems Programming and Optimization, Universitat Politècnica de Catalunya  
 Spring'04 Multithreaded Architectures and Software, College of William and Mary

### Course and Curriculum Development

ECS2001: Software and Electronic Systems Engineering Design Projects (2nd Stage), Developed from scratch, Queen's University of Belfast  
 ECS1002: Software and Electronic Systems Engineering Design Projects (1st Stage), Developed from scratch, Queen's University of Belfast  
 CS529: Multicore Processor Programming, Developed from scratch, University of Crete  
 CS425: Computer Systems Architecture, Major revision, University of Crete.  
 CS225: Computer Organization, Major revision (multi-core, cache coherence) , University of Crete  
 CS5234: Advanced Parallel Computation, Developed from scratch, Virginia Tech

### Teaching Grants

4. **Advanced Topics in the Implementation of Multicore Programming Models.** Sponsor: Universitat Politècnica de Catalunya. Amount: €2,400 Role: PI. Dates of activity: 05/2012–06/2012.
3. **Multi-core Systems Programming.** Sponsor: Universitat Politècnica de Catalunya. Amount: €2,400 Role: PI. Dates of activity: 05/2010–06/2010.
2. **Multi-core Systems Programming.** Sponsor: Universitat Politècnica de Catalunya. Amount: €3,600. Role: PI. Dates of activity: 05/2008–06/2008.
1. **Multi-core Systems Programming and Optimization.** Universitat Politècnica de Catalunya. Funding amount: €3,600. Role: PI. Dates of activity: 05/2007–06/2007.

### Supervision

#### Postdoctoral Research Fellows

16. **Dr Sakil Barbhuiya** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. Research themes. Cloud-based Distributed Manufacturing. 05/18–present. [C130, C127, C124, C123] Research themes: Smart manufacturing as a service.
15. **Dr Jun-Kyu Lee** – EEECS, Queen's University of Belfast. 04/17–present. [J51, P9] Research themes: Approximate computing.
14. **Dr Damon Fenacci** – EEECS, Queen's University of Belfast. 01/17–01/18. [C118] Research themes: Memory management.

13. **Dr Giorgis Georgakoudis** – EEECS, Queen’s University of Belfast. 05/16–09/18. [J52, J47, J44, J36, J33, C122, C121, C105, C97, C76, C64, W24, W21, W20] Research themes: System software and hardware/software interface.
12. **Dr Blesson Varghese** – EEECS, Queen’s University of Belfast. 01/16–06/17. [J49, J43, C98, W34, W35] Research themes: Energy-efficient and resilient high-performance computing.
11. **Dr Kiril Dichev** – EEECS, Queen’s University of Belfast. 10/15–08/19. [J48, C125, C124, C116, C115, C108, W29, P8] Research themes: Exascale resilience.
10. **Dr Cheol-Ho Hong** – EEECS, Queen’s University of Belfast. 06/15–12/17. [J42, J41, J39] Research themes: Accelerator virtualisation.
9. **Dr Lev Mukhanov** – EEECS, Queen’s University of Belfast. 04/14–present. [J54, J53, J40, C129, C128, C126, C114, C112, C111, C90, C89] Research themes: Abstraction-level energy accounting in many-core programming languages.
8. **Dr Zafeirios Papazachos** – EEECS, Queen’s University of Belfast. 01/14 – present. [C86, C85] Research themes: Data center performance & reliability monitoring and optimisation.
7. **Dr Hemant Mehta** – EEECS, Queen’s University of Belfast. 10/15–04/17. Research themes: Virtual machine energy accounting.
6. **Dr Yun Wu** – EEECS, Queen’s University of Belfast. 01/14–01/17. [C96, C79, W32, P7] Research themes: Energy-proportional many-core computing systems.
5. **Dr Paul Harvey** – EEECS, Queen’s University of Belfast. 01/16–09/16. [W28] Research themes: Exascale programming models.
4. **Dr Ahmed Sayed** – EEECS, Queen’s University of Belfast. 09/14–02/15. [J36, J33] Research themes: System software for real-time in-memory analytics.
3. **Dr Konstantina Mitropoulou** – EEECS, Queen’s University of Belfast. 01/14–03/14. Research themes: System software for real-time in-memory analytics.
2. **Dr Hans Vandierendonck** – FORTH-ICS. 10/10–10/11. [C62, C61, W19, W18] Research themes: Parallel programming, scheduling.
1. **Dr Christos D. Antonopoulos** – Computer Science, College of William & Mary. 06/04–06/06. [J16, J15, J13, J12, J11, C39, C38, C37, C36, C34, C32, C30, C29, C28, C27, C26, C25, C22, C15, C10, C7, W12, W11, W10, W9, I4] Research themes: Energy-efficient parallel computation, runtime systems, memory management.

### Research Assistants

3. **George Tzenakis** – Electronics, Electrical Engineering and Computer Science, Queen’s University of Belfast. [J25, C72, C62, C61, C59, C48, W32, W21] In progress. Research area: *Dynamic Parallelism and Elasticity* 10/12–02/17.
2. **Chhaya Trehan** – Electronics, Electrical Engineering and Computer Science, Queen’s University of Belfast. [C95, W26] 01/15–05/16.
1. **Mahwish Arif** – Electronics, Electrical Engineering and Computer Science, Queen’s University of Belfast (co-supervised with Hans Vandierendonck). [J51, C99, W31, W27] In progress. Thesis area: *Performance Portability*.

## Ph.D. Thesis Students

### Primary Advisor

13. **Moustafa Kahla** – Computer Science, Virginia Tech. In progress. Thesis area: *Edge Computing, Containers*.
12. **Abdullahi Abubakar** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. In progress. [C130] Thesis area: *Anomaly Detection in Streaming Data*.
11. **Kai Chen** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. In progress. [C131, W35] Thesis area: *Multi-scale Power and Performance Modelling*.
10. **Dr Nan Wang** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. July 2019. [J56, J43, C98, W34] September 2019. Thesis title: *Resource Management for Edge Computing Systems*.
9. **Dr Roxana Istrate** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. July 2019. [C119, W36] July 2019. Thesis title: *Efficient Neural Network Architecture Search*.
8. **Dr Sakil Barbhuiya** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast (co-supervised with Peter Kilpatrick). [C98, C85, W32, BC7, P7] July 2018. Thesis title: *Anomaly Detection in Cloud and Mobile Devices*.
7. **Dr Charalambos Chalios** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast (co-supervised with Hans Vandierendonck). [J47, J38, J35, J29, C84, C81, W33, W25, W22] July 2017. Thesis title: *Software-Defined Significance-Based Computing*.
6. **Dr Giorgis Georgakoudis** – Computer and Telecommunications Engineering, University of Thessaly (co-supervised with Spyros Lalas). [J36, J33, C97, C76, C64, W24, W21, W20] May 2016. Thesis title: *Scheduling and Performance Characterization on Heterogeneous Computing Systems*.
5. **Dr Jae-seung Yeom** [J19, J17, C75, C56, C45, C43] – Computer Science, Virginia Tech (co-supervised with Madhav Marathe). May 2014. Thesis title: *Optimizing Data Accesses for Scaling Data-intensive Scientific Applications*.
4. **Dr Spyros Lyberis** – Computer Science, University of Crete. [J26, C65, C63] July 2013. Thesis title: *Myrmics: A Scalable Runtime System for Global Address Spaces*.
3. **Dr Scott Schneider** – Computer Science, Virginia Tech. [J17, C53, C45, C43, C39, C32, C30] December 2010. Thesis title: *Shared Memory Abstractions for Heterogeneous Multicore Processors*.
2. **Dr Filip Blagojevic** – Computer Science, Virginia Tech. [J16, J15, J13, J12, J11, C54, C47, C44, C43, C41, C40, C38, C37, C27] May 2008. Thesis title: *Scheduling on Asymmetric Parallel Architectures*.
1. **Dr Matthew Curtis-Maury** – Computer Science, Virginia Tech. [J13, J12, C54, C47, C44, C43, C36, C34, C29, W16, W15, W12, W11, W9, BC5] March 2008. Thesis title: *Improving the Efficiency of Parallel Applications on Multithreaded and Multicore Systems*. **Virginia Tech Outstanding Ph.D. Dissertation Award**.

### Co-Advisor

14. **Ioannis Tsiokanos** – Electronics, Electrical Engineering and Computer Science, Queen's University Belfast (co-supervised with Georgios Karakonstantis). [J54, C128, C114, C113] area: *Variation-Aware Design*.



13. **Konstantions Tovletoglou** – Electronics, Electrical Engineering and Computer Science, Queen’s University of Belfast (co-supervised with Georgios Karakonstantis). [J53, J47, C129, C126, C125, C112, C111, C103, C102, W33, W32, P10] Thesis area: *DRAM Error Resilience*.
12. **Esha Barlaskar** – Electronics, Electrical Engineering and Computer Science, Queen’s University of Belfast (co-supervised with Ivor Spence, Peter Kilpatrick). [C115, C109, C100] In progress. Thesis area: *Inter-Cloud VM Migration*.
11. **Dr Jiawen Sun** – Electronics, Electrical Engineering and Computer Science, Queen’s University of Belfast (co-supervised with Hans Vandierendonck). [C120, C104, C101, W27] July 2017. Thesis title: *The GraphGrind framework : fast graph analytics on large shared-memory systems*.
10. **Dr Stuart McCool** – Electronics, Electrical Engineering and Computer Science, Queen’s University of Belfast (co-supervised with Peter Kilpatrick). July 2016. Thesis title: *Guidance Environments for Program Parallelisation and Analysis*.
9. **Dr Ahmad Hassan** – Electronics, Electrical Engineering and Computer Science, Queen’s University of Belfast (co-supervised with Hans Vandierendonck). [J55, J34, C97, C88, C83, W23] July 2016. Thesis title: *Software Management of Hybrid Main Memory Systems*.
8. **Dr Eoghan O’Neill** – Electronics, Electrical Engineering and Computer Science, Queen’s University of Belfast (co-supervised with Peter Kilpatrick). [J37] October 2015. Thesis title: *A Framework for Managing Shared Accelerators in Heterogeneous Environments*.
7. **Dr Aleksandr Khasymski** – Computer Science, Virginia Tech (co-supervised with Ali R. Butt). [J32, C66, BC6] February 2015. Thesis title: *Accelerated Storage Systems*.
6. **Dr Chun-Yi Su** – Computer Science, Virginia Tech (co-supervised with Kirk W. Cameron). [J22, C87, C69] December 2014. Thesis title: *Energy-Aware Thread and Data Management in Heterogeneous Multi-Core and Multi-Memory Systems*.
5. **Dr Vassilis Papaefstathiou** – Computer Science, University of Crete (co-supervised with Manolis Katevenis). [J26, J18, C91, C70, C63, C57] November 2013. Thesis title: *Architectural Support for Software-Guided Energy Reduction of Manycore Communication*.
4. **Dr Muhammad Mustafa Rafique** – Computer Science, Virginia Tech. [J20, J14, C66, C51, C46, C42, BC6, BC4, P3] September 2011 (co-supervised with Ali R. Butt). Thesis title: *An Adaptive Framework for Managing Heterogeneous Many-Core Clusters*.
3. **Dr Dong Li** – Computer Science, Virginia Tech. [J24, J22, C69, C58, C50, C49, BC3, P4] January 2011 (co-supervised with Kirk W. Cameron). *Scalable and Energy Efficient Execution Methods for Multicore Systems*. **Virginia Tech Outstanding Ph.D. Dissertation Award**.
2. **Dr John Christian Linford** – Computer Science, Virginia Tech (co-supervised with Adrian Sandu). [C45] May 2010. Thesis title: *Accelerating Atmospheric Modeling Through Emerging Multi-core Technologies*.
1. **Dr Richard Tran Mills** – Computer Science, College of William & Mary (co-supervised with Andreas Stathopoulos). [J10, C33, C24] November 2004. Thesis title: *Dynamic Adaptation to CPU and Memory Load in Scientific Applications*.

### Visiting Ph.D. Students

2. **Oscar Garcia Lorenzo** – Computer Architecture, University of Santiago de Compostela. [C82] April 2016. Thesis title: *Hardware counter based performance analysis, modelling, and improvement through thread migration in NUMA systems*.
1. **Dr Satoshi Imamura** – System LSI Laboratory. Kyushu University. [C78].

## M.Sc. Research Students

### Primary Advisor

21. Daniel Moyer – Computer Science, Virginia Tech. In progress. Theme: Serverless Computing.
20. Sam Hentschel – Computer Science, Virginia Tech. In progress. Theme: High-Performance SGX Enclaves.
19. **Dimitris Chassapis** – Computer Science, University of Crete. [P5] Thesis title: *Static Analysis for Parallelism and Correctness in Task Dataflow Programming Models*.
18. **Ioannis Manousakis** – Computer Science, University of Crete. [J30, J23, C68]. July 2013. Thesis title: *TPROF: An Energy Profiler for Task-Parallel Programs*.
17. **Evangelos Kafentarakis** – Computer Science, University of Crete. July 2013. Thesis title: *Lprof: A Tool for Profiling Locality Awareness in a Task-Based Programming Model*.
16. **Christi Symeonidou** – Computer Science, University of Crete. [J28, C71]. July 2013. Thesis title: *Distributed Region-Based Allocation and Synchronization*.
15. **Kallia Chronaki** – Computer Science, University of Crete. [C74]. June 2013. Thesis title: *Exploiting Pipelined Parallelism with Task Dataflow Programming Models*.
14. **Alexandros Labrineas** – Computer Science, University of Crete. June 2013. Thesis title: *BDDT-SCC: A Task-Parallel Runtime for the Single-Chip Cloud Computer*.
13. **Anastasios Papagiannis** – Computer Science, University of Crete. [J27, C60, C55] March 2013. Thesis title: *MapReduce on Distributed-Memory Many-Core Architectures*.
12. **Angelos Papatriantafyllou** – Computer Science, University of Crete. [C72, C62] March 2012. Thesis title: *Optimized Block-Based Dependence Analysis for Task Parallelism*.
11. **Constantinos Koukos** – Computer Science, University of Crete (co-supervised with Angelos Bilas). [C48] August 2010. Thesis title: *Locality Management in Task-Based Parallel Programming Models*.
10. **Pranav Tendulkar** – ALaRi Institute Advanced Studies in Embedded Systems Design. [C57] June 2010. Thesis title: *Runtime OpenMP Support using Hardware Primitives on Explicitly Memory Managed Multi-Processors*.
9. **Michail Zampetakis** – Computer Science, University of Crete. [C52] April 2010. *Runtime Support for Programming Explicit Communication Chip Multiprocessors*.
8. **Maria Katsamani** – Computer Science, University of Crete (co-supervised with Manolis Katevenis). March 2010. Thesis title: *Software Implementation of MPI Primitives on Multicore FPGA*.
7. **Benjamin Rose** – Computer Science, Virginia Tech. [C47, C46, C45] May 2009. Thesis title: *Intra- and Inter-Chip Communication Support for Asymmetric Multicore Processors with Explicitly Managed Memory Hierarchies*.
6. **Beran Nova Bryant** – Computer Science, Virginia Tech. May 2008. *Temperature-Aware Scheduling of Parallel Applications on Shared-Memory Multiprocessors*.
5. **Harshil Shah** – Computer Science, Virginia Tech. May 2008. *Application Parallelization on the Cell/BE*.
4. **Jyotirmaya Tripathi** – Computer Science, Virginia Tech. [W16] May 2008. *Scheduling Parallel Applications on Paravirtualized Shared-Memory Multiprocessors*.

3. **Ankur Shah** – Computer Science, Virginia Tech. [C44] April 2008. Thesis title: *Prediction Models for Multi-dimensional Power-Performance Optimization on Many Cores*.
2. **Scott Schneider** – Computer Science, College of William & Mary. [C30] June 2005. Thesis title: *Factory: An Object-Oriented Parallel Programming Substrate for Deep Multiprocessors*.
1. **Robert McGregor** – Computer Science, College of William & Mary. [C26] May 2005. *Scheduling with Bus Bandwidth Considerations on Shared-Memory Multiprocessors*.

### Co-Advisor

4. **Foivos Zakkak** – Computer Science, University of Crete (co-supervised with Angelos Bilas). [J30, C73, C67, P5] March 2012. Thesis title: *SCOOP: Language Extensions and Compiler Optimizations for Task-based Programming Models*.
3. **Ioannis Kesapides** – Computer Science, University of Crete (co-supervised with Angelos Bilas). [C62, I12] March 2011. Thesis title: *Dynamic Dependence Analysis on Multi-core Processors*.
2. **Michail Alvanos** – Computer Science, University of Crete (co-supervised with Angelos Bilas). [C59, C48, I9] June 2010. Thesis title: *Design and Evaluation of a Task-based Parallel H.264 Video Encoder for the Cell Processor*.
1. **George Tzenakis** – Computer Science, University of Crete (co-supervised with Angelos Bilas). [C48, I9] October 2009. Thesis title: *Tagged Procedure Calls (TPC): Efficient Runtime Support for Task-Based Parallelism on the Cell Processor*.

### Undergraduate (BEng/BSc) Research Students

18. **Catherine Lee** – Computer Science, Virginia Tech. Spring 2020.
17. **Nikolaos Parasyris** – Electrical and Computer Engineering, National Technical University of Athens. September 2015. [J40] *Fine-grain energy profiling of large software repositories*.
16. **Stylianos Ninidakis** – Computer Science, University of Crete. June 2011. *Parallelizing Irregular applications with Task Dataflow*.
15. **Nikolaos Papakonstantinou** – Computer Science, University of Crete. June 2011. *Distributed Dynamic Dependence Analysis for Task Dataflow Models*.
14. **Nikolaos Papadopoulos** – Computer Science, University of Crete, February 2012. *Scheduler-Driven Dynamic Data Placement for NUMA Multi-cores*.
13. **Ioannis Manousakis** – Computer Science, University of Crete, May 2011. *Component-level Power Instrumentation on Multiprocessors*.
12. **Dimitrios Chassapis** – Computer Science, University of Crete, May 2011. *Static Dependence Analysis for Task Dataflow Models*.
11. **Christi Symeonidou** – Computer Science, University of Crete, May 2011. *Multi-node Communication Layer on the SARC FPGA Prototype*.
10. **Alexandros Labrineas** – Computer Science, University of Crete, May 2011. *Early Release Optimizations for Task Dataflow Programming Models*.
9. **Kallia Chronaki** – Computer Science, University of Crete, May 2011. *Parallel Loop Scheduling on the SARC Multi-core Processor*.

8. **Christos Margiolas** – Computer Science, University of Crete, June 2010. *Data Placement and NUMA-Aware Optimization of MapReduce.*
7. **Foivos Zakkak** – Computer Science, University of Crete, June 2010 (co-supervised with Angelos Bilas). *Source-to-Source Compiler Optimizations for Task Parallelism.*
6. **Spyros Tsatuhos** – Computer Science, University of Crete, June 2010. *POSIX Threads Library Implementation on the SARC FPGA Prototype.*
5. **Evangelos Kafentarakis** – Computer Science, University of Crete, June 2009. *Software Shared Memory Layer for CPU-GPU Systems.*
4. **Anastasios Papagiannis** – Computer Science, University of Crete, June 2009. *Performance Analysis of Virtual Machine Schedulers in Xen.*
3. **Patric Fiaux** – Computer Science, Virginia Tech, May 2007. *Application Parallelization and Optimization on Cell/BE.*
2. **James Dzierwa** – Computer Science, College of William & Mary, May 2006. *Hardware Monitors for Power-Performance Adaptation.*
1. **Evan McCreedy** – Computer Science, College of William & Mary, May 2004. *Multi-level Parallelization of MPIBlast.*

## Service

### Professional Activities

#### Membership in Professional Societies

Chartered Engineer (CEng) (2018–present)

The Institution of Engineering and Technology (IET), Fellow (2017–present)

British Computer Society (BCS), Fellow (2014–present)

United Kingdom Council of Professors and Heads of Computing (CPHC), Member (2012–present)

Association for Computing Machinery (ACM), Distinguished Member (2018–present), Senior Member (2011–2018), Member (1995–2011)

ACM Special Interest Group on Computer Architecture (SIGARCH), Member, (2000–present)

ACM Special Interest Group on Operating Systems (SIGOPS), Member, (2000–present)

ACM Special Interest Group on High Performance Computing (SIGHPC), Member, (2000–present)

Institute of Electrical and Electronics Engineers (IEEE), Senior Member (2010–present), Member (1997–present)

IEEE Computer Society, Member (1997–present)

Technical Chamber of Greece, Member (1996–present)

#### Conference Committee Activities

##### Program Chair:

5. IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGRID) – 2014
4. International Workshop on Power-Aware Algorithms
3. EuroMPI MPI Conference – 2011
2. IEEE International Conference on Scalable Computing and Communications (ScalCom) – 2011
1. Workshop on Parallel Programming for Accelerators (PPAC) – 2009, 2010, 2011

**Program Vice Chair/Area Chair:**

5. International Conference on Embedded Computer Systems: Architecture, Modelling and Simulation (SAMOS) – 2016
4. IEEE/ACM International Conference on High Performance Computing, Networking, Architecture and Storage (SC) – 2014
3. European Conference on Parallel Processing (EuroPar) – 2012
2. IEEE International Parallel and Distributed Processing Symposium (IPDPS) – 2011
1. International Conference on Parallel Processing (ICPP) – 2007

**General Chair:**

10. IEEE International Conference on Cluster Computing (CLUSTER) – 2018, 2010
9. IEEE International Symposium on the Performance Analysis of Systems and Software (ISPASS) – 2018
8. ISC Conference Workshop on Approximate and Transprecision Computing on Emerging Technologies – 2018
7. HiPEAC Conference Workshop on Approximate Computing – 2018
6. SC Conference Workshop on Energy Efficient Supercomputing – 2017, 2016, 2015, 2014, 2013
5. ParCo Conference MiniSymposium on Edge Computing – 2017
4. ParCo Conference MiniSymposium on Parallel Programming for Reliability and Energy Efficiency – 2016
3. ParCo Conference MiniSymposium on Energy and Resilience in Parallel Programming – 2015
2. HiPEAC Conference Workshop on Energy Efficient Heterogeneous Computing – 2015
1. ICPP Conference Workshop on Power Aware Systems and Architectures – 2013

**Program Committee:**

49. ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS) – 2021
48. ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP) – 2021, 2020, 2015, 2013
47. IEEE/ACM International Symposium on High Performance Distributed Computing (HPDC) – 2020, 2019
46. ACM International Conference on Supercomputing (ICS) – 2020, 2017, 2014, 2012, 2011, 2009, 2007
45. IEEE International Parallel and Distributed Processing Symposium (IPDPS) – 2020, 2019, 2018, 2017, 2014, 2013
44. International Conference on Parallel Processing (ICPP) – 2020, 2019, 2018, 2017, 2016, 2014, 2008, 2004, 2003



43. IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGRID) – 2020, 2019, 2018, 2016, 2015, 2013
42. International Supercomputing Conference (ISC) – 2020, 2019, 2018
41. European Conference on Parallel Processing (EuroPar) – 2020, 2016, 2014 2013
40. International Green and Sustainable Computing Conference (IGSC) – 2020, 2019
39. Workshop on Languages and Compilers for Parallel Computing (LCPC) – 2020
38. IEEE International Conference on High Performance Computing (HiPC) – 2019, 2016 2015, 2014
37. Parallel Computing Conference (ParCo) – 2019, 2017, 2015
36. IEEE Graph Computing Conference (GC) – 2019
35. IEEE Big Data – 2018, 2017, 2016, 2015, 2014, 2013
34. IEEE/ACM International Conference on High Performance Computing, Networking, Storage and Analysis (SC) – 2018, 2016, 2015, 2013, 2012
33. ACM International Conference on Distributed Event Based Systems (DEBS) – 2018
32. International Conference on Embedded Computer Systems: Architecture, Modelling and Simulation (SAMOS) – 2018, 2017, 2015, 2014
31. ISC Conference Workshop on Communication Architectures for HPC, Big Data, Deep Learning and Clouds at Extreme Scale (ExaComm) – 2018, 2017
30. ACM Conference on Computing Frontiers (CF) – 2017, 2015, 2014, 2011
29. IEEE Conference on Cluster Computing (CLUSTER) – 2016, 2015, 2013, 2012, 2011
28. ISC Workshop on Energy-Aware High Performance Computing (EnaHPC) – 2017, 2016, 2015, 2014
27. IEEE International Conference on Big Data (BigData) – 2017, 2016, 2014
26. IEEE International Conference on Ubiquitous Computing and Communications (IUCC) – 2016, 2012
25. HiPEAC International Conference on High Performance and Embedded Architectures and Compilation – 2015, 2014, 2013, 2012
24. ACM PPOPP Conference Workshop on General Purpose Processing using GPU (GPGPU) – 2015, 2014
23. Feedback Computing Conference – 2015, 2010
22. IEEE International Conference on Green Computing and Communications (GreenCom) – 2013, 2011, 2010
21. IEEE International Conference on Parallel and Distributed Systems (ICPADS) – 2012, 2010, 2006, 2004
20. IEEE High Performance Computing and Communications Conference (HPCC) – 2012, 2009
19. Symposium on Application Accelerators for High Performance Computing (SAAHPC) – 2012, 2011, 2010, 2009

18. IFIP Network and Parallel Computing Conference (NPC) – 2012, 2011, 2010
17. International Conference on Architecture of Computer Systems (ARCS) – 2012, 2011, 2010
16. IEEE Network and Storage Systems Conference (NAS) – 2011, 2010, 2009
15. IEEE International Conference on e-Business Engineering (ICEBE) – 2011, 2010
14. IEEE Green Computing Conference – 2010
13. International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP) – 2010
12. IEEE International Conference on Scalable Computing and Communications (ScalCom) – 2010, 2009
11. IEEE Cloud Computing Conference (CloudCom) – 2010, 2009
10. IEEE International Conference on Computational Science and Engineering (CSE) – 2010, 2009
9. International Conference on Future Computational Technologies and Applications (Future Computing) – 2010
8. International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT) – 2010
7. IEEE International Conference on Parallel Architectures and Compilation Techniques (PACT) – 2009
6. IEEE Autonomic and Trusted Computing Conference (ATC) – 2008, 2007, 2006
5. Balkan Conference on Informatics (BCI) – 2007
4. ACM SIGMETRICS International Conference on Measurement and Modeling of Computer and Communication Systems – 2006
3. IEEE International Conference on Pervasive Systems (ICPS) – 2005
2. International Symposium on High Performance Computing (ISHPC) – 2003
1. International Conference on Computational Science (ICCS) – 2001

**Program Committee (Workshops):**

21. ICPP Conference Workshop on Heterogeneous and Unconventional Cluster Architectures and Applications (HUCAA) – 2016, 2015
20. ParCo Conference MiniSymposium on Parallel Programming for Reliability and Energy-Efficiency (PP4REE) – 2016
19. HiPEAC Conference Workshop on Approximate Computing (WAPCO) – 2016, 2015
18. CGO Conference Workshop on Code Optimization for Multi- and Many-Cores (COSMIC) – 2015, 2014
17. HiPEAC Conference Workshop on Programmability and Architectures for Heterogeneous Multi-cores (MULTIPROG) – 2015, 2014, 2013, 2012, 2011, 2010
16. ICPP Conference Workshop on Parallel Programming Models and System Software for High-End Computing (P2S2) – 2014, 2013

15. SC Conference Energy-Efficient Supercomputing Workshop (E2SC) – 2014, 2013
14. ISC Conference Workshop on Virtualization for High Performance Computing (VHPC) – 2014, 2013, 2012, 2011, 2010, 2009, 2008
13. PLDI Conference Workshop on Memory Systems Performance and Correctness (MSPC) – 2014, 2011
12. IPDPS Workshop on Accelerators and Hybrid Exascale Systems (ASHES) – 2014, 2013, 2012
11. IBM Extreme Scale Parallel Architecture and Systems Workshop (ESPAS) – 2014
10. Embedded Operating Systems Workshop (EWiLi) – 2013
9. ISCA Conference Workshop on Future Architectural Support for Parallel Programming Workshop (FASPP) – 2012, 2011
8. HiPEAC Workshop on Computer Architecture and Operating System CoDesign (CAOS) – 2012
7. PACT Conference Workshop on Programming Models for Emerging Architectures (PMEA) – 2011, 2010, 2009
6. IPDPS Conference Workshop on Software Engineering Innovation for HPC Clouds (SinHPC) – 2011
5. ICS Conference on Workshop on Characterizing Applications for Heterogeneous Exascale Systems (CACHES) – 2011
4. International Workshop on Cloud Computing Interoperability and Services (InterCloud) – 2010
3. ISCA Conference Workshop on Next Generation Multi/Many-core Technologies (FMT) – 2010, 2008
2. IPDPS Conference High Performance Power Aware Computing Workshop (HPPAC) – 2009, 2008
1. IBM Cell Processor Programming Workshop (CELL) – 2009

**Steering Committee Member:**

2. IEEE International Conference on Cluster Computing (CLUSTER) – 2009–2011, 2017–2019
1. IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS) – 2018–2020

**Other Committee Service:**

7. IEEE/ACM International Conference on High Performance Computing, Networking, Storage and Analysis (SC) – HPC Impact Showcase Chair 2017. Tutorials Committee 2014, 2013
6. ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP) – External Review Committee 2014, 2012
5. International Supercomputing Conference (ISC) – Tutorials Committee 2014, 2013, 2012
4. HiPEAC Conference – Workshop and Tutorials Chair 2011
3. EuroMPI Conference – Finance Chair 2011
2. ACM International Conference on Supercomputing (ICS) – Finance Chair 2009, Workshops and Tutorials Chair 2007

1. SIAM Conference on Parallel Processing for Scientific Computing – Mini-Workshop Organizer 2006, 2004

#### Session Chair

12. IEEE/ACM International Symposium on High Performance Distributed Computing (HPDC) – 2020
11. ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS) – 2020
10. IPDPS Workshop on Variability in Computing Systems (VarSys) – 2016
9. SC Workshop on Energy-Efficient Supercomputing (E2SC) – 2014
8. IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGRID) – 2014
7. International Conference on Embedded Computer Systems: Architecture, Modelling and Simulation (SAMOS) – 2013
6. ICPP Conference Workshop on Power Aware Systems and Architectures – 2013
5. IEEE/ACM International Conference on High Performance Computing, Networking, Analysis and Storage (SC) – 2013, 2012
4. ACM International Conference on Computing Frontiers (CF) – 2011
3. International Conference on High Performance and Embedded Architectures and Compilation (HiPEAC) – 2011, 2008
2. International Conference on Parallel Processing (ICPP) – 2010
1. IEEE International Parallel and Distributed Processing Symposium (IPDPS) – 2009

#### Editorial Boards

13. IEEE Transactions on Parallel and Distributed Systems. **Associate Editor**, 2018–present
12. Computer Physics Communications. **HPC Specialist Editor**, 2017–present
11. Journal of Computational Sciences. **Editorial Board Member**, 2014–present
10. International Journal of High Performance Computing Applications (IJHPCA). **Associate Editor**, 2012–present
9. International Journal of Parallel, Emergent and Distributed Systems (IJPEDS). **Associate Editor**, 2010–present
8. Sustainable Computing: Informatics and Systems (SUSCOM). **Editorial Board Member**, 2010–present
7. International Journal of Information Technology, Communications and Convergence. **Editorial Board Member**, 2009

6. Scientific Programming. **Editorial Board Member**, 2015–2016
5. Concurrency and Computation: Practice and Experience (CCPE). **Editorial Review Board**, 2015
4. Parallel Computing (PARCO). **Guest Editor**, 2015
3. IET Computers and Digital Techniques. **Guest Editor**, 2014
2. Sustainable Computing: Informatics and Systems (SUSCOM). **Guest Editor**, 2014
1. Journal of Autonomic and Trusted Computing. **Editorial Board Member**, 2006–2007

#### **Reviewer Work for Technical Journals, Conferences and Publishers**

41. ACM Transactions on Computer Systems
40. ACM Transactions on Programming Languages and Systems
39. ACM Transactions on Parallel Computing
38. ACM Transactions on Architecture and Code Optimization
37. ACM Transactions on Embedded Computing Systems
36. ACM Transactions on Reconfigurable Technology and SYstems
35. ACM Computer Architecture Letters
34. IEEE Micro
33. IEEE Computer
32. IEEE Spectrum
31. IEEE Transactions on Computers
30. IEEE Transactions on Parallel and Distributed Systems
29. IEEE Access
28. The Computer Journal
27. Proceedings of the VLDB Endowment
26. Journal of Parallel and Distributed Computing
25. International Journal of Parallel Programming
24. IBM Journal of Research and Development
23. BMC Bioinformatics Journal
22. ETRI Journal



21. IET Computers and Digital Techniques
20. Springer Journal of Signal Processing Systems
19. International Journal of High Performance Computing Applications
18. Elsevier Journal of Systems and Software
17. Transactions on High Performance and Embedded Architectures and Compilation
16. Journal of VLSI for Signal Processing
15. Future Generation Computer Systems
14. Scientific Programming
13. EURASIP Journal on Embedded Systems
12. Sustainable Computing: Informatics and Systems
11. Software Practice and Experience
10. Elsevier Journal of Network and Computer Applications
9. Springer Nature
8. Springer Computing
7. Journal of Computer Science and Technology
6. ACM Symposium on Parallel Algorithms and Architectures (SPAA)
5. IEEE/ACM International Conference on Microarchitecture (MICRO)
4. IEEE/ACM International Symposium on High Performance Computer Architecture (HPCA)
3. IEEE International Conference on Modeling and Analysis of Computer and Telecommunication Systems (MASCOTS)
2. IEEE International Communications Conference (ICC)
1. IEEE International Conference on Quantitative Evaluation of Systems (QEST)

### **Significant University and Departmental Leadership**

40. Operations Working Group, Computer Science, Virginia Tech (2020)
39. University Reputation Group, Queen's University Belfast (2018)
38. Global Challenges Research Fund Committee, Queen's University Belfast (2018)
37. Director of the Queen's Global Research Institute on Electronics, Communications and Information Technology (ECIT) (2018–2019)
36. Vice Chancellor Selection Panel, Queen's University Belfast (2017)
35. Director of Information Services Selection Panel, Queen's University Belfast (2017)
34. University Brand Committee, Queen's University Belfast (2017–present)
33. Member of the University Research Forum, Queen's University Belfast (2012–2019)

32. Member of the University High Performance Computing Advisory Group, Queen's University Belfast (2012–2019)
31. Excellence in Leadership Training Program Speaker, Queen's University Belfast (2017)
30. Member of the University Academic Council, Queen's University Belfast (2016–2018)
29. Member of the Faculty of Engineering and Physical Sciences Promotions Panel, Queen's University Belfast (2016–2019)
28. Member of the Faculty of Engineering and Physical Sciences Executive Board, Queen's University Belfast (2016–2019)
27. Head of School of EEECS, Queen's University Belfast (2016–2018)
26. Post-Doctoral Researchers Peer Mentor, Queen's University Belfast (2017–2018)
25. Early-Career Academic Staff Peer Mentor, Queen's University Belfast (2012–2019)
24. Senior Academic Staff Recruitment Working Group, Queen's University Belfast (2017–2019)
23. Acting Director of Centre for Data Science and Scalable Computing, Queen's University Belfast (2016–2019)
22. Member of the Senior Management Group Institute of Electronics, Communication and Information Technologies, Queen's University Belfast (2016–2019)
21. Engineering (Unit of Assessment 12) REF Champion, Queen's University Belfast (2018–2019)
20. Computer Science (UoA11) REF Champion, Queen's University Belfast (2015–2019)
19. School of EEECS Research Strategy Group Co-Chair, Queen's University Belfast (2015–2019)
18. BCS Program Accreditation Committee Group Member, Queen's University Belfast (2013)
17. Computer Science Building Project Implementation Group, Queen's University Belfast (2013–2017)
16. Excellence in Leadership Training Program , Queen's University Belfast (2012–2013)
15. Member of the Senior Management Group School EEECS, Queen's University Belfast (2012–2018)
14. School of EEECS Education Committee, Queen's University Belfast (2012)
13. School of EEECS Academic Staff Hiring Panels, Queen's University Belfast (2012–2019)
12. Undergraduate Curriculum Committee in Computer Science, University of Crete (2010–2012)
11. University Data Center Infrastructure Committee, University of Crete (2010– 2012)
10. Graduate Admissions Committee in Computer Science, University of Crete (2009–2011)
9. Computer Organisation Course Coordinator, Virginia Tech (2008–2009)
8. Junior Faculty Mentor, Virginia Tech (2008–2009)
7. Ph.D. Qualifying Exam Committee, Virginia Tech (2007–2009)
6. Computer Science Computing Resources Committee, Virginia Tech (2006–2008)
5. Computer Science Graduate Admissions Committee, College of William & Mary (2005–2006)

4. Computer Science Graduate Curriculum Committee, College of William & Mary(2005–2006)
3. Computer Science Faculty Hiring Committee, College of William & Mary (2002–2005)
2. Computer Science Equipment Committee, College of William & Mary (2003–2005)
1. Freshman Academic Advisor, College of William & Mary (2004–2006)

### **Significant External Leadership and Service**

31. Faculty Promotion and Tenure Committee, Technical University of Crete (2019)
30. Faculty Promotion and Tenure Committee, University of Thessaly (2019, 2016)
29. Engineering and Physical Research Council UK (EPSRC) Strategic Advisory Team (SAT) Member – e-Infrastructure (2018–present)
28. European Commission Framework Programme Consultant on Cloud Computing, European Commission DG Unit (2018)
27. Faculty Promotion and Tenure Committee, University of Thessaly (2018)
26. Faculty Promotion and Tenure Committee, Université Paris-Sorbonne (2018)
25. Knowledge Transfer Partnership in Blockchain Technology, Vox Financial Partnerships (2018)
24. Knowledge Transfer Partnership in OpenCL Technology, Crevinn (2017)
23. Foreign Direct Investment Consultant, Invest Northern Ireland (2017)
22. Faculty Promotion and Tenure Committee, Aristotle University of Thessaloniki (2017)
21. Faculty Promotion and Tenure Committee, Chalmers University of Technology (2017)
20. Faculty Promotion and Tenure committee, University of Crete (2020,2018,2017,2016)
19. Scientific Advisory Board Member, European Commission Horizon2020 INTERTWinE Project (2015–2018)
18. Scientific Advisory Member, European Commission Horizon2020 Programme (2016)
17. Grant Proposal Evaluator, King Abdullah University of Science and Technology (2016)
16. Faculty Promotion and Tenure Committee, National Technical University of Athens (2016, 2014)
15. Faculty Promotion and Tenure Committee, Ionian University (2016)
14. Faculty Promotion and Tenure Committee, University of Athens (2015)
13. Faculty Promotion and Tenure Committee, Technological Educational Institute of Athens (2015)
12. Faculty Promotion and Tenure Committee, Technological Educational Institute of Piraeus (2015)
11. Faculty Promotion and Tenure Committee, Technological Educational Institute of Western Greece (2015,2016)
10. Faculty Promotion and Tenure Committee, Technological Educational Institute of Piraeus (2014)
9. Faculty Promotion and Tenure Committee, Technological Educational Institute of Western Greece (2014)

8. Industry-Academic Partnership Training, Westminster Higher Education Forum (2013)
7. External examiner, School of Computing, University of Leeds (2012–present)
6. Faculty Promotion and Tenure Committee, University of Crete (2013)
5. Multiple Industrial Consultancies, Queen’s University Belfast (2012–present)
4. Faculty Promotion and Tenure Committee, University of Ioannina (2011)
3. Faculty Promotion and Tenure Committee, Aristotle University of Thessaloniki (2011)
2. Faculty Hiring Committee, Technical University of Denmark (2010)
1. Faculty Hiring Committee, National Technical University of Athens (2010)

#### PhD Examiner (UK) or Committee Member (US and elsewhere)

42. **Song Zheng**. Department of Computer Science, Virginia Tech, 2020 *Self-Adaptive Edge Services: Enhancing Reliability, Efficiency, and Adaptiveness under Unreliable, Scarce, and Dissimilar Resources*. Supervisor: Eli Tilevich.
41. **Dimitrios Chasapis**. Barcelona Supercomputing Centre, 2019 *Towards Resource-Aware Computing for Task-Based Runtimes and Parallel Architectures*. Supervisor: Marc Casas Guix, Miquel Moretó Planas.
40. **Leszek Sliwko**. University of Westminster, 2019 *Intelligent Load Balancing in Cloud Computer Systems*. Supervisor: Vladimir Getov.
39. **Mohammed Al-Hayanni**. Newcastle University, 2018 *Investigation into Scalable Energy and Performance Models for Many-Core Systems*. Supervisor: Alex Yakovlev.
38. **Daniele di Sensi**. University of Pisa, 2018 *Self-Adaptive Solutions for Managing Performance and Power Consumption of Parallel Applications*. Supervisor: Marco Danelutto.
37. **Ahsan Javed Awan**. KTH, 2017 *Performance Characterization and Optimization of In-Memory Data Analytics on a Scale-up Server*. Supervisor: Mats Brorsson.
36. **Vassilis Vassiliadis**. University of Thessaly, 2017 *Optimization of Program Execution using Computational Significance*. Supervisor: Christos D. Antonopoulos.
35. **Rajiv Nishtala**. Barcelona Supercomputing Centre, 2017 *Energy Optimising Methodologies on Heterogeneous Data Centres*. Supervisor: Xavier Martorell.
34. **Foivos Zakkak**. Computer Science, University of Crete, 2016 *Java on Scalable Memory Architectures*. Supervisor: Polyvios Pratikakis.
33. **Ioannis Nikolakopoulos**. Computer Science and Engineering, Chalmers University, 2016 *Shared Memory Objects as Synchronization Abstractions: Algorithmic Implementations and Concurrent Applications*. Supervisor: Marina Papatriantafillou.
32. **Spiros Agathos**. Computer Engineering, University of Ioannina, 2016 *Efficient OpenMP Runtime Support for General-Purpose and Embedded Multi-core Platforms*. Supervisor: Vassilis Dimakopoulos.
31. **Madhavan Manivannan**. Computer Science and Engineering, Chalmers University, 2016 *Towards Runtime-Assisted Cache Management for Task-Parallel Programs*. Supervisor: Per Stenström.
30. **Spiros Agathos**. Computer Engineering, University of Ioannina, 2016 *Efficient OpenMP Runtime Support for General-Purpose and Embedded Multi-core Platforms*. Supervisor: Vassilis Dimakopoulos.

29. **Kiran Chandramohan**, Informatics, University of Edinburgh, 2016 *Mapping Parallelism to Heterogeneous Processors*. Supervisor: Michael O'Boyle.
28. **Javier Bueno Hedo**, Computer Architecture, Universitat Politecnica de Catalunya, 2015 *Runtime Support for Multi-Level Disjoint Memory Address Spaces*. Supervisor: Xavier Martorell.
27. **Eleftherios Kosmas**, Computer Science, University of Crete, December 2014. *Techniques for Enhancing Parallelism in Mechanisms that Automatically Execute Sequential Code in Concurrent Environments*. Supervisor: Panagiota Fatourou.
26. **Georgios Vassiliadis**, Computer Science, University of Crete, December 2014. Thesis title: *Accelerating Stateful Network Packet Processing Using Graphics Hardware*. Supervisor: Evangelos Markatos, Sotiris Ioannidis.
25. **Chun-Yi Su**, Computer Science, Virginia Tech, December 2014. Thesis title: *Resource Management on Heterogeneous Multi-Core, Multi-Memory Systems*. Supervisor: Kirk W. Cameron.
24. **Hung-Ching Chang**, Computer Science, Virginia Tech, December 2014. Thesis title: *Measuring, modeling and optimizing counterintuitive performance phenomena in power-scalable, parallel systems*. Supervisor: Kirk W. Cameron.
23. **Muhammad Tayyab Chaudhry**, Computer Science and Information Technology, University of Malaya, December 2014. Thesis title: *Thermal-Aware Scheduling in Green Data Centers*. Supervisor: Ling Teck Chaw.
22. **Pranav Tendulkar**, Computer Science, Verimag and University of Grenoble, France, October 2014. Thesis title: *Mapping and Scheduling on Multicore Processors using SMT Solvers*. Supervisor: Oded Maler.
21. **Iasonas Polakis**, Computer Science, University of Crete, Greece, February 2014. Thesis title: *Online Social Networks form a Malicious Perspective: Novel Attack Techniques and Defense Mechanisms*. Supervisor: Evangelos Markatos.
20. **Anastasios Nanos**, Electrical and Computer Engineering, National Technical University of Athens, Greece, December 2013. Thesis title: *Efficient I/O Resource Sharing in Virtual Machine Environments*. Supervisor: Nectarios Koziris.
19. **Nikolaos Kallimanis**, Computer Science, University of Ioannina, Greece, May 2013. Thesis title: *Highly Efficient Synchronization Techniques in Shared Memory Distributed Systems*. Supervisor: Panagiota Fatourou.
18. **Mushen Owaida**, Computer & Communication Engineering, University of Thessaly, Greece, September 2012. Thesis title: *Using Parallel Programming Models for Architectural Synthesis*. Supervisor: Nikolaos Bellas.
17. **Carlos Villavieja**, Computer Architecture, Universitat Politecnica de Catalunya, January 2012. Thesis title: *Hardware and Software Support for Distributed Shared Memory in Chip Multiprocessors*. Supervisor: Alex Ramirez.
16. **Demetrios Antoniadis**, Computer Science, University of Crete, December 2011. Thesis title: *Understanding File and Information Sharing Services in Web 2.0*. Supervisor: Evangelos Markatos.
15. **Mauricio Alvarez**, Computer Architecture, Universitat Politecnica de Catalunya, September 2011. Thesis title: *Parallel Video Decoding*. Supervisor: Alex Ramirez.



14. **Elias Athanasopoulos**, Computer Science, University of Crete, March 2011. Thesis title: *Modern Techniques for the Detection and Prevention of Web2.o Attacks*. Supervisor: Evangelos Markatos.
13. **Andrea Di Biaggio**, Electronics and Informatics, Politecnico di Milano, December 2010. Thesis title: *Synchronization and Data Distribution Optimization for Distributed Shared Memory Multiprocessors*. Supervisor: Stefano Crespi Reghizzi.
12. **Stamatis Kavadias**, Computer Science, University of Crete, September 2010. Thesis title: *Direct Communication and Synchronization Mechanisms in Chip Multiprocessors*. Supervisor: Manolis Katevenis.
11. **Kornilios Kourtis**, Electrical and Computer Engineering, National Technical University of Athens, April 2010. Thesis title: *Data Compression Techniques for Performance Improvement of Memory-Intensive Applications on Shared Memory Architectures*. Supervisor: Nectarios Koziris.
10. **Nikolaos Anastopoulos**, Electrical and Computer Engineering, National Technical University of Athens, March 2010. Thesis title: *Techniques for the Optimization and Efficient Mapping of Parallel Code on Computational Nodes with Multithreaded and Multicore Processors*. Supervisor: Nectarios Koziris.
9. **Dimitrios Syrivelis**, Computer & Communication Engineering, University of Thessaly, June 2009. Thesis title: *Exploiting Reconfigurable Heterogeneous Parallel Architectures in a Multitasking Context: a Systems Approach*. Supervisor: Spyros Lalas.
8. **Matthew Tolentino**, Computer Science, Virginia Tech, February 2009. Thesis title: *Managing Memory for Power, Performance, and Thermal Efficiency*. Supervisor: Kirk W. Cameron.
7. Guanying Wang, Computer Science, Virginia Tech, September 2009. Thesis title: *Evaluating MapReduce Systems: A Simulation Approach*. Supervisor: Ali R. Butt
6. **Montse Farreras**, Computer Architecture, Universitat Politècnica de Catalunya, December 2008. Thesis title: *Optimizing Programming Models for Massively Parallel Computers*. Principal Supervisor: Toni Cortes.
5. **Andrey Chernikov**, Computer Science, College of William & Mary, August 2007. Thesis title: *Parallel Generalized Delaunay Mesh Refinement*. Supervisor: Nikos Chrisochoides.
4. **Qi Zhang**, Computer Science, College of William & Mary, December 2006. Thesis title: *The Effect of Workload Dependence in Systems: Experimental Evaluation, Analytic Models, and Policy Development*. Supervisor: Evgenia Smirni.
3. **Songqing Chen**, Computer Science, College of William & Mary, August 2004. Thesis title: *Building Internet Caching Systems for Multimedia Content Delivery*. Supervisor: Xiaodong Zhang.
2. **Kevin Barker**, Computer Science, College of William & Mary, May 2004. Thesis title: *Runtime Support for Load Balancing of Parallel Adaptive and Irregular Applications*. Supervisor: Nikos Chrisochoides.
1. **Zhichun Zhu**, Computer Science, College of William & Mary, August 2003. Thesis title: *Power Considerations for Memory-related Microarchitecture Designs*. Supervisor: Xiaodong Zhang.

### Government Research Funding Panelist & Reviewer Service

29. Swiss National Science Foundation. Grant Proposal Reviewer, 2020, 2016
28. Royal Academy of Engineering, United Kingdom. Grant Proposal Reviewer, 2017

27. Grant Proposal Evaluator Austrian Academy of Sciences, 2017
26. Technology Foundation STW, The Netherlands. Grant Proposal Reviewer, 2016
25. National Science Centre Poland. Grant Proposal Reviewer, 2016
24. Natural Science and Engineering Research Council of Canada (NSERC). Discovery Grants Panelist, 2016
23. University of Cyprus Research Foundation. Grant Proposal Reviewer, 2016
22. Royal Academy of Engineering, United Kingdom. Grant Proposal Reviewer, 2015
21. Natural Science and Engineering Research Council of Canada (NSERC). Discovery Grants Panelist, 2015
20. Natural Science and Engineering Research Council of Canada (NSERC). Discovery Grants Panelist, 2014
19. UK Engineering and Physical Sciences Research Council (EPSRC). Platform Grant Panelist, 2015
18. UK Engineering and Physical Sciences Research Council (EPSRC). Grant Proposal Reviewer, 2018
17. UK Engineering and Physical Sciences Research Council (EPSRC). Grant Proposal Reviewer, 2017
16. UK Engineering and Physical Sciences Research Council (EPSRC). Grant Proposal Reviewer, 2014
15. UK Engineering and Physical Sciences Research Council (EPSRC). Grant Proposal Reviewer, 2013
14. UK Engineering and Physical Sciences Research Council (EPSRC). Grant Proposal Reviewer, 2012
13. European Commission FP7 Framework Programme. Project Reviewer, 2016
12. European Commission FP7 Framework Programme. Project Reviewer, 2015
11. European Commission FP7 Framework Programme. Project Reviewer, 2014
10. European Commission FP7 Framework Programme. Project Reviewer, 2013
9. European Commission FP7 Framework Programme. Grant Proposal Reviewer, 2012
8. Greek Secretariat for Research and Technology. Grant Proposal Reviewer, 2010
7. U.S.–Israel Binational Science Foundation. Grant Proposal Reviewer, 2009
6. United States National Science Foundation. CISE Directorate. Panelist, 2008
5. Natural Science and Engineering Research Council of Canada. Grant Proposal Reviewer, 2007
4. United States National Science Foundation. CISE Directorate. Panelist, 2004
3. United States National Science Foundation. CISE Directorate. Panelist, 2003
2. United States National Science Foundation. CISE Directorate. Panelist, 2002
1. Maryland Industrial Partnerships Program. Grant Proposal Reviewer, 2007

## Conference Panels

7. *EPSRC Workshop on Manycore Computing: Hardware and Software*. Panelist. Southampton, UK, January 2018.
6. Heterogeneous and/or Homogeneous computing supporting parallel applications Which are the key driving factors for the application developers and platform designers? Are they cooperating or fighting? *6th Workshop on Parallel Programming and Run-Time Management Techniques for Many-core Architectures (PARMA-DITAM 2015)*. Panelist. January 2015.
5. *IBM Research ExaChallenge Symposium*. Panelist. Dublin, Ireland, October 2012.
4. Accelerators: Fad, Fashion, or Future? *39th International Conference on Parallel Processing (ICPP)*. Panelist. September 2010.
3. Key Challenges Presented by Next Generation Hardware Systems. *Fall Creek Falls Conference*. Panelist. September 2007.
2. Invitee, *Microsoft Faculty Research Summit*. Redmond, WA, September 2007.
1. NSF Next Generation Systems Software Program. *15th ACM International Conference on Supercomputing ICS*. Panelist. June 2001.

## Invited Seminars and Talks

50. From Approximate, to Significance-Driven to Transprecision Computing: Challenges and Opportunities, Distinguished Speaker Seminar, Department of Computational Science, ETH Zurich, April 2018.
49. Virtualising Any Accelerator Anywhere, Distinguished Speaker Seminar, Department of Computer Science, College of William and Mary, January 2018.
48. The Jevons Paradox in Computing Systems Research, Distinguished Lecture Series, Department of Computer Science, Virginia Tech, November 2016.
47. *Computational Significance and its Implications for HPC*, 13th Workshop on Clusters, Clouds, and Data for Scientific Computing (**CCDSC'16**), Chaminade, France, October 2016.
46. *Computational Significance and its Implications for Computing Systems*, School of Electrical and Electronic Engineering, Newcastle University, October 2016.
45. *Scaling Up, Out, or Down*, School of Informatics, University of Edinburgh, March 2016.
44. *Significance-Driven Runtime Systems*, RoMoL'16 Workshop, Barcelona, Spain, March 2016.
43. *Advances in Energy-Efficient and Resilient HPC: Scaling Up, Out, or Back?*, Cardiff University, March 2016.
42. *Variability: Why should we care?*, Birds of a Feather Session on Variability in Large-Scale Computing Systems, held in conjunction with the SC'15 Conference, Austin, TX, November 2015.
41. *New Approaches to Energy-Efficient and Resilient HPC*, Department of Computer Science, Old Dominion University, November 2015.
40. *HPDC Research at Queen's: An Overview*, ARM High Performance Computing Group, Manchester, UK, November 2015.

39. *Server Resource Provisioning for Real-Time Analytics using Iso-Metrics*, Workshop on Performance Modelling: Methods and Applications, in conjunction with the 2015 International Supercomputing Conference (**ISC'15**) , Frankfurt, Germany, July 2015.
38. *Evaluating Servers using Iso-Metrics: Power, Performance and Programmability Implications*. Eighth Workshop on Programmability Issues for Heterogeneous Multicores (**MULTIPROG'15**), Amsterdam, The Netherlands, January 2015.
37. *The Challenges and Opportunities of Micro-Servers in the HPC Ecosystem*, 12th Workshop on Clusters, Clouds, and Data for Scientific Computing (**CCDSC'14**) , Chemin de Chanzé, France, October 2014.
36. *NVRAM as a User-Level Object Store*. HiPEAC Autumn Computing Systems Week, Athens, Greece, October 2014.
35. *On the Viability of Microservers for Real-Time Data Analytics*. HiPEAC Autumn Computing Systems Week, Athens, Greece, October 2014.
34. *NanoStreams: A Hardware and Software Stack for Real-Time Analytics on Fast Data Streams*. Horizon 2020 – the HPC Opportunity, London, United Kingdom, March 2014.
33. *GEMSCCLAIM: Greener Mobile Systems by Cross-Layer Energy Management*. CHIST-ERA 2014 Projects Seminar, Istanbul, Turkey, March 2014.
32. *Searching for Data: The Ever Increasing Role of Memory Hierarchies on the Performance and Sustainability of Computing Systems*. Inaugural Lecture, Queen's University of Belfast, March 2013.
31. *Energy as a Resource in Parallel Programs*. Supercomputing'12 Birds-of-a-Feather Session on Cool Supercomputing, November 2012.
30. *Block-Level Dynamic Dependence Analysis for Task-Based Parallelism*. Workshop on Perspectives on Parallel Numerical Linear Algebra, Manchester, UK, July 2012.
29. *Software Techniques for Energy Conservation in High-End Computing Systems*. Invited Seminar, School of Computer Science, University of Manchester, UK, March 2012.
28. *Energy Efficiency at Extreme Scale Tools and Challenges*. Supercomputing'11 Birds-of-a-Feather Session on Energy-Efficiency, November 2011.
27. *Rearchitecting MapReduce for Heterogeneous Multicore Processors with Explicitly Managed Memories*. School of Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. October 2010.
26. *Determinism in Parallel Software and Architectures*. HiPEAC Systems Week Cluster Meetings, Barcelona, October 2009.
25. *Parallelizing Non-trivial Applications with Multiple Programming Models*. HiPEAC Systems Week Cluster Meetings, Barcelona, October 2009.
24. *Uniform Evaluation of Programming Models*. HiPEAC Systems Week Cluster Meetings, Paris, November 2008.
23. *Unifying Layered Parallelism on the Cell BE*. Supercomputing'07 Birds-of-a-Feather Session on Unleashing the Power of the Cell Broadband Engine Processor for HPC, November 2007.
22. *Unified Scheduling of Polymorphic Parallelism on Asymmetric Multi-core Systems*. Lawrence Livermore National Laboratory. October 2007.

21. *System Software for Scaling on Many Cores*. Oak Ridge National Laboratory. September 2007.
20. *Design and Implementation of Time- and Power-Efficient Software Stacks for Multicore Processors*. IBM Thomas J. Watson Research Center. December 2006.
19. *Design and Implementation of Time- and Power-Efficient Software Stacks for Multicore Processors*. Department of Computer Science, North Carolina State University. September 2006.
18. *Hardware Event-Driven Scalability Predictors: Improving Energy-Efficiency under Hard Performance Constraints on Multi-core and Multi-threaded Architectures*. Department of Electronic and Computer Engineering, Technical University of Crete. June 2006.
17. *Addressing the Challenges of Chip Multiprocessors using Autonomic Software*. Department of Computer Science, University of California, Riverside. April 2006.
16. *Addressing the Challenges of Chip Multiprocessors using Autonomic Software*. Department of Electrical and Computer Engineering, University of British Columbia. March 2006.
15. *High-Performance Power-Efficient Runtime Environments for Dense Computing Systems*/ Department of Computer Science, Virginia Tech. February 2006.
14. *High-Performance Power-Efficient Runtime Environments for Dense Computing Systems*. Institute of Computer Science, Foundation for Research and Technology – Hellas. June 2005.
13. *High-Performance Power-Efficient Runtime Environments for Dense Computing Systems*. Department of Computer Engineering and Informatics, University of Patras. June 2005.
12. *A Unified Programming Framework for Multigrain Multithreaded Architectures*. Institute of Computer Science, Foundation for Research and Technology – Hellas. June 2004.
11. *A Unified Programming Framework for Multigrain Multithreading*. School of Electrical and Computer Engineering, National Technical University of Athens. June 2004.
10. *A Unified Programming Framework for Multigrain Multithreading*. Department of Computer Science, University of California at Riverside. April 2004.
9. *A Unified Programming Framework for Multigrain Parallel Architectures*. Department of Electrical and Computer Engineering, Northwestern University. February 2004.
8. *Program Transformations and Scheduling Algorithms for Managing Shared Caches on Multithreaded Processors*. Department of Informatics, Athens University of Economics and Business. June 2003.
7. *Program Transformations and Scheduling Algorithms for Managing Shared Caches on SMT Processors*. IBM Thomas J. Watson Research Center. March 2003.
6. *Building Adaptive Programs with Local Sensing of Execution Conditions*. Department of Computer Science, Texas A&M University. March 2003.
5. *Interoperable System Software*. Department of Information and Computer Sciences, University of California, Irvine. April 2002.
4. *Interoperable System Software*. Department of Computer Science, College of William and Mary. March 2002.
3. *Scaling Shared-Memory Programming Models beyond Shared-Memory Architectures*. Department of Computer Science, University of Houston. November 2001.



2. *Some Steps towards Simple, Scalable and Portable Parallel Programming Models*. Department of Computer Science, College of William & Mary. October 2001.
1. *A Case for User-Level Page Migration*. Coordinated Sciences Laboratory, University of Illinois at Urbana-Champaign. January 2001.