Baris Aksanli

baksanli@sdsu.edu

Web Site: https://aksanli.sdsu.edu/

Contact

Phone : 619-594-2257

Address

Department of Electrical and Computer Engineering, San Diego State University, 5500 Campanile Drive San Diego, CA 92182

Profile

Research Interests Energy-efficient large-scale cyber-physical and embedded systems, real-time embedded systems, efficient machine learning, machine learning security.

Academic Work Experience

San Diego State University, Electrical and Computer Engineering Department, San Diego, CA

Associate Professor **June 2022- Current**

Assistant Professor **August 2016 – June 2022**

- ✓ Working on embedded systems, machine learning security, Internet of Things, Cyber-physical Systems
- ✓ Sample projects include 1) Real-time human activity detection with ambient wireless sensors, 2) Real-time embedded learning, 3) Animal activity detection in the wild with wearable sensors, 4) Acceleration in processors with approximate computing, 5) Real-time traffic classification and protection for edge networks, 6) Secure and efficient machine learning.
- ✓ Teaching embedded system classes: Embedded Computing, Embedded Programming, Real Time and Embedded Operating Systems, Cyber-Physical Systems

UC San Diego, Computer Science and Engineering Department, La Jolla, CA

Postdoctoral Researcher **June 2015 – June 2016**

- ✓ At System Energy Efficiency Lab, working on Internet of Things and energy efficient systems
- ✓ Learning techniques to improve user behavior modeling and context extraction in residential houses
- ✓ Cost and energy aware automation of residential houses
- ✓ Sustainable energy management and coordination between residential neighborhoods and the smart grid

UC San Diego, Computer Science and Engineering Department, La Jolla, CA

Graduate Student Researcher **September 2010 – June 2015**

- ✓ Large scale data analysis and simulation of large-scale SLA/power/thermal changes in a data center.
- ✓ Efficient usage of renewable energy (wind, solar) in data centers by scheduling and prediction.
- ✓ Using batteries to shave peak power and minimize the total energy cost in data centers.
- ✓ Distributed control mechanisms to manage state-of-health of distributed batteries to maximize battery lifetime.
- ✓ Energy management in a smart home equipped with a fuel cell, a solar panel, and multiple batteries.

Education

2010 - 2015 **UC - San Diego, La Jolla, CA**
PhD, Computer Science
PhD Thesis: Energy and Cost-Efficient Data Centers

2010 to 2012 **UC - San Diego, La Jolla, CA**
Master of Science, Computer Science

2005 to 2010 **Bogazici University, Istanbul, Turkey**
Bachelor of Science, Computer Engineering
Bachelor Thesis: Parallelization of Design Automation Algorithms with GPGPUs

2005 to 2010 **Bogazici University, Istanbul, Turkey**
Bachelor of Science, Mathematics

2009 **University of Paderborn, Paderborn, Germany**
Erasmus Student, Computer Science

Teaching Experience

COMPE 596/525 - San Diego State University, Electrical and Computer Engineering Department

- ✓ Semesters: Sp20, Sp21, Sp22, Sp23, Sp25
- ✓ Instructing the graduate level course "Cyber-Physical Systems" (EE600/COMPE 596/COMPE 525).
- ✓ The class teaches core principles of building CPSs, hardware and software components of CPSs, formal CPS modeling and verification, real-time control, and timing analysis of CPSs, data processing for CPSs, practical CPS examples and applications.

COMPE 375 - San Diego State University, Electrical and Computer Engineering Department

- ✓ Semesters: Sp17, Sp18, Fa18, Sp19, Su19, Fa19, Sp20, Su20, Fa20, Sp21, Su21, Fa21, Sp22, Su22. Fa22, Sp23, Su23, Fa23, Sp24, Su24, Fa24, Sp25, Su25, Fa25, Sp26, Su26, Fa26
- ✓ Instructing the junior level course "Embedded Systems Programming" (COMPE375).
- ✓ The class teaches programming in multiple microcontrollers, learning how to write and debug code in different software development platforms, using topics such as serial/general purpose I/O, timers, interrupts, ADC, DAC, and memory programming.

COMPE 571 - San Diego State University, Electrical and Computer Engineering Department

- ✓ Semesters: Fa16, Fa17, Fa18, Fa19, Fa20, Fa21, Fa22, Fa23, Fa24, Fa25, Fa26
- ✓ Instructing the graduate level course "Embedded Operating Systems" (COMPE571).
- ✓ The class teaches real-time kernel development, basic kernel services, threading and synchronization, preemptive multithreading, mutexes, spin locks, critical sections, priority scheduling, interrupts, RTOS implementation, memory management, task management, inter-task communications, along with examples of embedded, real-time operating systems.

CSE190G - UC San Diego, Computer Science and Engineering Department

- ✓ Semesters: Sp16
- ✓ Instructed the undergraduate level course "Embedded Computing" (CSE190G).
- ✓ The class teaches the basics of formal embedded system modeling, hardware/software co-design, real-time scheduling, embedded processor, and memory architectures.

CSE291 - UC San Diego, Computer Science and Engineering Department

- ✓ Semesters: Wi16
- ✓ Instructed the graduate level course "Internet of Things".

CSE237A - UC San Diego, Computer Science and Engineering Department

- ✓ Semesters: Wi13 (Teaching assistant)
- ✓ Assisted the graduate course "Introduction to Embedded Computing".

MATH202 - Bogazici University Mathematics Department, Istanbul, Turkey

- ✓ Semesters: Sp10 (Teaching assistant)
- ✓ Gave lectures in problem sessions of the course 'Differential Equations'.

CMPE150 - Bogazici University Computer Engineering Department, Istanbul, Turkey

- ✓ Semesters: Sp08, Fa08 (Teaching assistant)
- ✓ Gave lectures in discussion sessions of the course 'Introduction to Computing' and graded student projects.

Qualifications and Honors

- San Diego State University, Outstanding Faculty Award, May 2026
- San Diego State University, Exceptional Service Award, May 2025
- San Diego State University, University Grants Program Award, January 2024
- San Diego State University, Assigned Time for RSCA Award, May 2023
- Best paper runner-up, IEEE/ACM SafeThings 2023 Conference, May 2023
- 1st place in DASSH (Designing Actionable Solutions for a Secure Homeland) Student Design Challenge with SDSU Team, February 2023.
- Invited speaker in IEEE SENSORS 2021. October 2021
- Finalist in paper contest. 55th Asilomar Conference on Signals, Systems and Computers. October 2021

- SDSU Faculty Forward Award. December 2020
- Best paper nominee, IEEE SENSORS Conference, October 2020
- Best paper award, IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON), November 2018
- Best paper nominee, ASME Power & Energy Conference, June 2018
- 3rd place in General Electric Digital CSU Challenge 2018 with SDSU team, April 2018
- San Diego State University, University Grants Program Award, December 2016
- San Diego State University, Presidential Leadership Award, December 2016
- San Diego State University, Grants and Research Enterprise Writing Fellow, October 2016
- UC San Diego Campus Sustainability Award, Outstanding Individual, April 2016
- Excellent Poster Presentation Award in UCSD CSE 25th year celebration event, October 2013
- Best Student Paper Award, International Symposium on Computers and Communications (ISCC), July 2013
- Spontaneous Recognition Award from Intel, for the summer internship, September 2012
- Internet2 IDEA Award Winner, October 2011
- Best paper award, Workshop on Power Aware Computing and Systems (HotPower), July 2011
- UC San Diego Graduate Fellowship, 2010
- Bogazici University High Honor Degree, 2010:
  - Faculty of Engineering, Computer Engineering
  - Faculty of Art and Sciences, Mathematics
- Bogazici University Computer Engineering, ranked 2nd in graduation, June 2010
- Bogazici University Mathematics, ranked 1st in graduation, June 2010

Publications

1. Cagla Ipek Kocal, Onat Gungor, Tajana Rosing, **Baris Aksanli.** ReLATE+: Unified Framework for Adversarial Attack Detection, Classification, and Resilient Model Selection in Time-Series Classification. *MDPI Electronics*. 2026.
2. Gamze Kirman Tokgoz, Onat Gungor, Tajana Rosing, **Baris Aksanli**. INTARG: Informed Real-Time Adversarial Attack Generation for Time-Series Regression. *IEEE International Symposium on Networks, Computers and Communications (ISNCC)*. 2026.
3. A. G. M. Fuad Hasan Akanda and **Baris Aksanli**. DAFF: Deployment-Aware Feature Fusion for Efficient TinyML-Based Intrusion Detection in IoT. *IEEE International Symposium on Networks, Computers and Communications (ISNCC)*. 2026.
4. Aaron Tartz and **Baris Aksanli**. Efficient and Robust Multivariate Time Series Classification with Hyperdimensional Computing. *IEEE International Symposium on Networks, Computers and Communications (ISNCC)*. 2025.
5. Cagla Ipek Kocal, Onat Gungor, Aaron Tartz, Tajana Rosing, **Baris Aksanli.** ReLATE: Resilient Learner Selection for Multivariate Time-Series Classification Against Adversarial Attacks. *IEEE International Conference on Cyber Security and Resilience*. 2025.
6. Matilda Gaddi, Flavio Ponzina, Fatemeh Asgarinejad, **Baris Aksanli**, Tajana Rosing. HyperECG: ECG Signal Inference from Radar with Hyperdimensional Computing. *IEEE International Conference on Bioinformatics & Bioengineering (BIBE)*. 2024.
7. Fatemeh Asgarinejad, Anthony Thomas, Ryan Hildebrant, Zhenyu Zhang, Shangping Ren, Tajana Rosing, Baris Aksanli. Optimized Early Prediction of Business Processes with Hyperdimensional Computing. *MDPI Information.* 2024.
8. Weihong Xu, Saransh Gupta, Justin Morris, Xincheng Shen, Mohsen Imani, **Baris Aksanli**, Tajana Rosing. Tri-HD: Energy-Efficient On-Chip Learning With In-Memory Hyperdimensional Computing. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*. 2024.
9. Fatemeh Asgarinejad, Flavio Ponzina, Onat Gungor, Tajana Rosing, **Baris Aksanli**. HDXpose: Harnessing Hyperdimensional Computing's Explainability for Adversarial Attacks. *ACM/IEEE International Conference on Computer-Aided Design*. 2024.
10. Onat Gungor, Tajana Rosing, **Baris Aksanli**. A2HD: Adaptive Adversarial Training for Hyperdimensional Computing-Based Intrusion Detection Against Adversarial Attacks. *IEEE International Conference on Cyber Security and Resilience*. 2024.
11. Fatemeh Asgarinejad, Justin Morris, Tajana Rosing, **Baris Aksanli.** VisionHD: Towards Efficient and Privacy-Preserved Hyperdimensional Computing for Image Data. *ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED)*. 2024.
12. Alice Sokolova, **Baris Aksanli**, Frederic Harris, Harinath Garudadri. A Curvilinear Transfer Function for Wide Dynamic Range Compression with Expansion. *Journal of the Audio Engineering Society.* 2024.

13. Fatemeh Asgarinejad, Xiaofan Yu, Danlin Jiang, Justin Morris, Tajana Rosing, **Baris Aksanli**. Enhanced Noise-Resilient Pressure Mat System Based on Hyperdimensional Computing. *MDPI Sensors*. 2024.
14. Onat Gungor, Tajana Rosing, **Baris Aksanli**. ROLDEF: RObust Layered DEFense for Intrusion Detection Against Adversarial Attacks. *Design, Automation and Test in Europe (DATE).* 2024.
15. Fatemeh Asgarinejad, Justin Morris, Tajana Rosing, **Baris Aksanli**. PIONEER: Highly Efficient and Accurate Hyperdimensional Computing using Learned Projection. *Asia and South Pacific Design Automation Conference (ASP-DAC)*. 2024.
16. Xiaofan Yu, Minxuan Zhou, Fatemeh Asgarinejad, Onat Gungor, **Baris Aksanli,** Tajana Rosing. Lightning Talk: Private and Secure Learning at the Edge with Hyperdimensional Computing. *IEEE/ACM Design Automation Conference (DAC)*, 2023.
17. Alice Sokolova, Varsha Rallapalli, Anusha Yellamsetty, Martin Hunt, **Baris Aksanli**, Fredric Harris, Harinath Garudadri. Validation of Frequency Warping (Freping) as a new tool for feedback control in hearing aids. *57th Asilomar Conference on Signals, Systems and Computers*. 2023.
18. Alice Sokolova, **Baris Aksanli**, Frederic Harris, Harinath Garudadri. Consolidating Compression and Revisiting Expansion: An Alternative Amplification Rule for Wide Dynamic Range Compression. *IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*. 2023.
19. Alice Sokolova, Varsha H. Rallapalli, Anusha Yellamsetty, Martin Hunt, **Baris Aksanli**, Fredric Harris, Harinath Garudadri. Acoustic feedback control in hearing aids with frequency warping. *Journal of Acoustical Society of America*. 2023.
20. Mitchell Timken, Onat Gungor, Tajana Rosing, **Baris Aksanli**. Analysis of Machine Learning Algorithms for Cyber Attack Detection in SCADA Power Systems. *International Conference on Smart Applications, Communications and Networking (SmartNets)*. 2023.
21. Tianqi Zhang, Justin Morris, Kenneth Stewart, Hin Wai Lui, Behnam Khaleghi, Anthony Thomas, Thiago Goncalves-Marback, **Baris Aksanli**, Emre Neftci, Tajana Rosing. HyperSpikeASIC: Accelerating Event-based Workloads with HyperDimensional Computing and Spiking Neural Networks. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*. 2023.
22. Onat Gungor, Tajana Rosing, **Baris Aksanli**. Adversarial-HD: Hyperdimensional Computing Adversarial Attack Design for Secure Industrial Internet of Things. *IEEE/ACM Workshop on the Internet of Safe Things, co-located with CPS-IoT Week*. 2023. **(Best paper runner-up)**
23. Josef Miller, Mauro Garcia, **Baris Aksanli**. WiP: Optimizing Solar-powered BLE Beacons for Wildlife Monitoring. *IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)*. 2023.
24. Tianqi Zhang, Sahand Salamat, Behnam Khaleghi, Justin Morris, **Baris Aksanli** and Tajana Rosing. HD2FPGA: Automated Framework for Accelerating Hyperdimensional Computing on FPGAs. *International Symposium on Quality Electronic Design (ISQED).* 2023.
25. Onat Gungor, Tajana Rosing, **Baris Aksanli**. HD-I-IoT: Hyperdimensional Computing for Resilient Industrial Internet of Things Analytics. *Design, Automation and Test in Europe (DATE).* 2023.
26. Onat Gungor, Tajana Rosing, **Baris Aksanli**. DENSE-DEFENSE: Diversity Promoting Ensemble Adversarial Training Towards Effective Defense. *IEEE SENSORS*. 2022.
27. Alice Sokolova, Dhiman Sengupta, Martin Hunt, Rajesh Gupta, **Baris Aksanli**, Fredric Harris, Harinath Garudadri. Real-time Multirate Multiband Amplification for Hearing Aids. *IEEE Access*. 2022.
28. Justin Morris, Yilun Hao, Saransh Gupta, Behnam Khaleghi**, Baris Aksanli**, Tajana Rosing. Stochastic-HD: Leveraging Stochastic Computing on the Hyper-Dimensional Computing Pipeline. *Frontiers in Neuroscience, section Neuromorphic Engineering.* 2022.
29. Onat Gungor, Tajana Rosing, **Baris Aksanli**. STEWART: STacking Ensemble for White-Box AdversaRial Attacks Towards More Resilient Data-driven Predictive Maintenance. *Computers in Industry.* 2022.
30. Justin Morris, Kazim Ergun, Behnam Khaleghi, Mohsen Imani, **Baris Aksanli**, Tajana Rosing. HyDREA: Utilizing Hyperdimensional Computing For A More Robust and Efficient Machine Learning System. *ACM Transactions on Embedded Computing Systems (TECS)*. 2022.
31. Saransh Gupta, Behnam Khaleghi, Sahand Salamat, Justin Morris, Ranganathan Ramkumar, Jeffrey Yu, Aniket Tiwari, Jaeyoung Kang, Mohsen Imani, **Baris Aksanli**, Tajana Rosing. Store-n-Learn: Classification and Clustering with Hyperdimensional Computing across Flash Hierarchy. *ACM Transactions on Embedded Computing Systems (TECS)*. 2022.
32. Justin Morris, Hin Wai Lui, Kenneth Stewart, Behnam Khaleghi, Anthony Thomas, Thiago Marback, **Baris Aksanli**, Emre Neftci, Tajana Rosing. HyperSpike: HyperDimensional Computing for More Efficient and Robust Spiking Neural Networks. *Design, Automation and Test in Europe (DATE).* 2022.
33. Onat Gungor, Tajana Rosing, **Baris Aksanli**. CAHEROS: Constraint-Aware HEuristic Approach for RObust Sensor Placement. *IEEE SENSORS*. 2021.

34. Onat Gungor, Tajana Rosing, **Baris Aksanli**. ENFES: ENsemble FEw-Shot Learning For Intelligent Fault Diagnosis with Limited Data. *IEEE SENSORS*. 2021.
35. Justin Morris, Si Thu Kaung Set, Gadi Rosen, Mohsen Imani, **Baris Aksanli** and Tajana Rosing. AdaptBit-HD: Adaptive Model Bitwidth for Hyperdimensional Computing. *IEEE International Conference on Computer Design (ICCD)*. 2021.
36. Yilun Hao, Saransh Gupta, Justin Morris, Behnam Khaleghi, **Baris Aksanli** and Tajana Rosing. Stochastic-HD: Leveraging Stochastic Computing on Hyper-Dimensional Computing. *IEEE International Conference on Computer Design (ICCD)*. 2021.
37. Onat Gungor, Tajana Rosing, **Baris Aksanli**. DOWELL: Diversity-induced Optimally Weighted Ensemble Learner for Predictive Maintenance of Industrial Internet of Things Devices. *IEEE Internet of Things Journal*. 2021.
38. Alice Sokolova, Dhiman Sengupta, Kuan-Lin Chen, Rajesh Gupta, **Baris Aksanli**, Fredric Harris, Harinath Garudadri. Multirate Audiometric Filter Bank for Hearing Aid Devices. *55th Asilomar Conference on Signals, Systems and Computers.* 2021. **(Finalist in best paper contest)**
39. Onat Gungor, Tajana Rosing, **Baris Aksanli**. RESPIRE++: Robust Indoor Sensor Placement Optimization under Distance Uncertainty. *IEEE Sensors Journal*. 2021.
40. Onat Gungor, Tajana Rosing, **Baris Aksanli**. OPELRUL: Optimally Weighted Ensemble Learner for Remaining Useful Life Prediction. *IEEE International Conference on Prognostics and Health Management (ICPHM)*. 2021.
41. Alice Sokolova, Mohsen Imani, Andrew Huang, Ricardo Garcia, Justin Morris, Tajana Rosing, **Baris Aksanli**. MACcelerator: Approximate Arithmetic Unit for Computational Acceleration. *International Symposium on Quality Electronic Design (ISQED).* 2021.
42. Justin Morris, Yilun Hao, Roshan Fernando, Mohsen Imani, **Baris Aksanli**, Tajana Rosing. Locality-based Encoder and Model Quantization for Efficient Hyper-Dimensional Computing. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*. 2021.
43. Justin Morris, Kazim Ergun, Behnam Khaleghi, Mohsen Imani, **Baris Aksanli**, Tajana Rosing. HyDREA: Towards More Robust and Efficient Machine Learning Systems with Hyperdimensional Computing. *Design, Automation and Test in Europe (DATE).* 2021.
44. Yunhui Guo, Mohsen Imani, J. Kang, Sahand Salamat, Justin Morris, **Baris Aksanli**, Yeseong Kim, Tajana Rosing, HyperRec: Efficient Recommender Systems with Hyperdimensional Computing. *Asia and South Pacific Design Automation Conference (ASP-DAC)*. 2021.
45. Justin Morris, Yilun Hao, Saransh Gupta, Ranganathan Ramkumar, Jeffrey Yu, Mohsen Imani, **Baris Aksanli**, Tajana Rosing. Multilabel HD Classification in 3D Flash. *IEEE/IFIP International Conference on VLSI and System-on-Chip (VLSI-SoC)*. 2020. (invited paper)
46. Onat Gungor, Jake Garnier, Tajana Rosing, **Baris Aksanli**. LENARD: Lightweight ENsemble LeARner for MeDium-term Electricity Consumption Prediction. *IEEE International Conference on Smart Grid Communications (SmartGridComm).* 2020.
47. Onat Gungor, Tajana Rosing, **Baris Aksanli**. RESPIRE: Robust Sensor Placement Optimization in Probabilistic Environments. *IEEE SENSORS*. 2020. **(Best paper nominee)**
48. Saransh Gupta, Justin Morris, Mohsen Imani, Ranganathan Ramkumar, Jeffrey Yu, Aniket Tiwari, **Baris Aksanli**, Tajana Rosing. THRIFTY: Training with Hyperdimensional Computing across Flash Hierarchy. *IEEE/ACM International Conference on Computer Aided Design (ICCAD)*. 2020.
49. Luis Camal and **Baris Aksanli**. Building an Energy-Efficient Ad-Hoc Network for Wildlife Observation. *MDPI Electronics*. 2020.
50. Luis Camal, Anup Kirtane, Teresa Blanco, Roberto Casas, Federico Rossano, **Baris Aksanli**. A Wearable Device Network to Track Animal Behavior and Relationships in the Wild. *IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON)*. 2019.
51. Saipriyati Singh and **Baris Aksanli**. Detecting Multiple People with Low-Resolution Thermal Sensors in Smart Spaces. *IEEE SENSORS*. 2019.
52. Tasneem Singh and **Baris Aksanli**. Real-time Traffic Monitoring and SQL Injection Attack Detection for Edge Networks. *ACM International Symposium on QoS and Security for Wireless and Mobile Networks*. 2019.
53. Saipriyati Singh and **Baris Aksanli**. Non-Intrusive Presence Detection and Position Tracking for Multiple People Using Low-Resolution Thermal Sensors. *Journal of Sensor and Actuator Networks*. 2019.
54. Onat Gungor, **Baris Aksanli**, Reyhan Aydogan. Algorithm Selection and Combining Multiple Learners for Residential Energy Prediction. *Future Generation Computer Systems (FGCS)*. 2019.
55. Mohsen Imani, Alice Sokolova , Ricardo Garcia, Andrew Huang, Fan Wu, **Baris Aksanli**, Tajana Rosing. ApproxLP: Approximate Multiplication with Linearization and Iterative Error Control. *IEEE/ACM Design Automation Conference (DAC)*, 2019.
56. Anthony Thomas, Yunhui Guo, Yeseong Kim, **Baris Aksanli**, Arun Kumar, Tajana Rosing. Hierarchical and Distributed Machine Learning Inference Beyond the Edge. *IEEE International Conference on Networking, Sensing and Control*.

2019.

57. Sagar Shelke and **Baris Aksanli**. Static and Dynamic Activity Detection with Ambient Sensors in Smart Spaces. *MDPI Sensors*. 2019.
58. Alice Sokolova and **Baris Aksanli**. Demographical Energy Usage Analysis of Residential Buildings. *ASME Journal of Energy Resources Technology*. 2019.
59. Aniruddha Patel, Chinmay Prabhudesai, **Baris Aksanli**. Non-Intrusive Activity Detection and Prediction in Smart Residential Spaces. *IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON)*. 2018. **(Best paper award)**
60. Neha Avinash Belapurkar, Sagar Shelke, **Baris Aksanli**. The Case for Ambient Sensing for Human Activity Detection. *International Workshop on Human-in-the-loop Internet of Things Systems (Hil-IoT) in conjunction with the International Conference on the Internet of Things (IoT)*. 2018.
61. Neha Avinash Belapurkar and **Baris Aksanli.** Energy-Efficient Human Activity Detection in Smart Spaces. *16th ACM International Symposium on Mobility Management and Wireless Access (MobiWac)* 2018.
62. Christine S. Chan, Alper Sinan Akyurek, **Baris Aksanli**, and Tajana Rosing. Optimal Performance-Aware Cooling on Enterprise Servers. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*. 2018.
63. Neha Avinash Belapurkar, Jacob Harbour, Sagar Shelke, **Baris Aksanli**. Building Data-Aware and Energy-Efficient Smart Spaces. *IEEE Internet of Things Journal Special Issue on Internet of Things for Smart & Sensing Systems: Issues, trends and applications*. 2018.
64. Sagar Shelke, Jacob Harbour, **Baris Aksanli**. Building an Intelligent and Efficient Smart Space to Detect Human Behavior in Common Areas. *IEEE International Symposium on Networks, Computers and Communications (ISNCC)*. 2018.
65. Alice Sokolova and **Baris Aksanli**. Demographical Energy Usage Analysis of Residential Buildings. *ASME Power & Energy Conference*. 2018. **(Best paper nominee)**
66. **Baris Aksanli**. Accurate and Data-Limited Prediction for Smart Home Energy Management. *ASME Power & Energy Conference*. 2018.
67. Jagannathan Venkatesh, **Baris Aksanli**, Christine S. Chan, Alper Sinan Akyurek, Tajana Simunic Rosing. Modular and Personalized Smart Health Application Design in a Smart City Environment. *IEEE Internet of Things Journal Special Issue on Internet of Things for Smart Cities*. 2017.
68. **Baris Aksanli**. Datacenter Peak Power Management with Energy Storage Devices. *IEEE Internet Computing Special Issue on Energy Efficient Data Centers.* 2017.
69. **Baris Aksanli** and Tajana S. Rosing. Human Behavior Aware Energy Management in Residential Cyber-Physical Systems. *IEEE Transactions on Emerging Topics in Computing Special Issue on Cyber-Physical Social Systems: Integrating Human into Computing.* 2017.
70. **Baris Aksanli**, Jagannathan Venkatesh, Christine Chan, Alper S. Akyurek, Tajana S. Rosing. Context-Aware and User-Centric Residential Energy Management. *International Workshop on Mobile and Pervasive Internet of Things'17 – in conjunction with IEEE International Conference on Pervasive Computing and Communication,* 2017.
71. Nima Mousavi, **Baris Aksanli**, Alper S. Akyurek, Tajana S. Rosing. Accuracy-Resource Tradeoff for Edge Devices in Internet of Things. *International Workshop on Smart Edge Computing and Networking (SmartEdge'17) – in conjunction with IEEE International Conference on Pervasive Computing and Communication,* 2017.
72. Jagannathan Venkatesh, **Baris Aksanli**, Christine Chan, Alper S. Akyurek and Tajana Rosing. Scalable Application Design for the Internet of Things. *IEEE Software Special Issue on Software Engineering for the Internet of Things*, 2017.
73. Akanksha Maurya, Alper Sinan Akyurek, **Baris Aksanli** and Tajana Rosing. Time-Series Clustering for Data Analysis in Smart Grid. *IEEE International Conference on Smart Grid Communications (SmartGridComm),* 2016.
74. **Baris Aksanli,** Alper Sinan Akyurek and Tajana Rosing. User Behavior Modeling for Estimating Residential Energy Consumption*. EAI International Conference on Smart Grids for Smart Cities*, 2015.
75. **Baris Aksanli,** Alper Sinan Akyurek and Tajana Rosing. Minimizing the Effects of Data Centers on Grid Instability. *IEEE International Green and Sustainable Computing Conference (IGSC)*, 2015.
76. Alper Sinan Akyurek, **Baris Aksanli** and Tajana Rosing. S^2Sim: Smart Grid Swarm Simulator. *IEEE International Green and Sustainable Computing Conference (IGSC)*, 2015.
77. **Baris Aksanli,** Jagannathan Venkatesh, Tajana Rosing, and Inder Monga. Renewable Energy Prediction for Improved Utilization and Efficiency in Datacenters and Backbone Networks. *Computational Sustainability, Springer.* 2015 (book chapter).
78. **Baris Aksanli**, Alper Sinan Akyurek, Madhur Behl, Meghan Clark, Alexandre Donze, Prabal Dutta, Patrick Lazik, Mehdi Maasoumy, Rahul Mangharam, Truong X. Nghiem, Vasumathi Raman, Anthony Rowe, Alberto Sangiovanni-Vincentelli, Sanjit A. Seshia, Tajana Simunic Rosing, Jagannathan Venkatesh. Distributed Control of a Swarm of Buildings Connected to a Smart Grid. *1st ACM International Conference on Embedded Systems For Energy-Efficient*

Buildings (BuildSys), 2014 (Demo paper).

79. **Baris Aksanli** and Tajana Rosing. Energy Management and Cost Analysis in Residential Houses using Batteries. *SRC TECHCON,* 2014.
80. **Baris Aksanli** and Tajana Rosing. Providing Regulation Services and Managing Data Center Peak Power Budgets. *Design, Automation and Test in Europe (DATE).* 2014.
81. **Baris Aksanli** and Tajana Rosing. Optimal Battery Configuration in a Residential Home with Time-of-Use Pricing. *International Conference on Smart Grid Communications (SmartGridComm),* 2013.
82. **Baris Aksanli**, Eddie Pettis, and Tajana Rosing. Architecting Efficient Peak Power Shaving Using Batteries in Data Centers. *International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS),* 2013.
83. **Baris Aksanli**, Eddie Pettis, and Tajana Rosing. Distributed Battery Control for Peak Power Shaving in Data Centers. *International Green Computing Conference (IGCC)* 2013.
84. **Baris Aksanli**, Jagannathan Venkatesh, Tajana Rosing, and Inder Monga. A Comprehensive Approach to Reduce the Energy Cost of Network of Datacenters. *International Symposium on Computers and Communications (ISCC),* 2013. ***(Best Student Paper)***
85. Jagannathan Venkatesh, **Baris Aksanli**, Tajana Rosing, Jean-Claude Junqua, and Philippe Morin. HomeSim: Comprehensive, Smart, Residential Energy Simulation and Scheduling. *International Green Computing Conference (IGCC)*, 2013.
86. Jagannathan Venkatesh, **Baris Aksanli**, and Tajana Rosing. Residential Energy Simulation and Scheduling: A Case Study Approach. *International Symposium on Computers and Communications (ISCC),* 2013.
87. **Baris Aksanli**, Jagannathan Venkatesh, and Tajana Rosing. Datacenter Modeling and Simulation with Focus on Energy Efficiency and Green Energy Integration. *IEEE Computer Special Issue on Modeling and Simulation of Smart and Green Computing Systems*, 2012.
88. **Baris Aksanli**, Jagannathan Venkatesh, Liuyi Zhang, and Tajana Rosing. Utilizing green energy prediction to schedule mixed batch and service jobs in data centers. *ACM SIGOPS Operating Systems Review*. 2012.
89. Vasileios Kontorinis, Liuyi Zhang, **Baris Aksanli,** Jack Sampson, Houman Homayoun, Dean Tullsen, Tajana Rosing, Eddie Pettis. Managing Distributed UPS Energy for Effective Power Capping in Data Centers. *International Symposium on Computer Architecture (ISCA).* 2012.
90. **Baris Aksanli,** Tajana Rosing, and Inder Monga. Benefits of Green Energy and Proportionality in High Speed Wide Area Networks Connecting Data Centers. *Design, Automation and Test in Europe (DATE).* 2012.
91. **Baris Aksanli,** Jagannathan Venkatesh, Liuyi Zhang, and Tajana Rosing. Utilizing Green Energy Prediction to Schedule Mixed Batch and Service Jobs in Data Centers. *Workshop on Power Aware Computing and Systems (HotPower)*, 2011. ***(Best of HotPower)***
92. Alper Sen, **Baris Aksanli**, and Murat Bozkurt. Speeding up Cycle- Based Logic Simulation using Graphics Units. *International Journal of Parallel Programming (IJPP),* 2011.
93. Alper Sen, **Baris Aksanli**, and Murat Bozkurt. Using Graphics Processing Units for Logic Simulation of Electronic Designs. International Workshop on Microprocessor Test and Verification (MTV), 2010.
94. Alper Sen, **Baris Aksanli**, Murat Bozkurt, and Melih Mert. Parallel Cycle Base Logic Simulation using Graphics Processing Units. *International Symposium on Parallel and Distributed Computing (ISPDC),* 2010.

Academic Service

- **Associate Editor –** Frontiers in Communications and Networks, Smart Grid Communications Section
- **Guest Editor –** Special Issue "Embedded Devices in IoT" in Electronics Journal
- **Editorial Board Member –** Electronics journal
- **Technical Committee Member** – DATE 2017, ICCCN 2017, PerIoT 2018, IARIA Energy 2018, IARIA DBKDA 2018, IEEE MCSoC 2018, IARIA ACCSE 2018, IEEE MCSoC 2019, PerIoT 2019, IEEE StITC 2019, IEEE BHI 2019, IEEE Sensors 2019, IEEE ICC 2020, PerIoT 2020, IEEE BHI 2020, IEEE MCSoC 2020, IEEE BHI 2021, IEEE WTS 2021, IEEE IGSC 2021, IEEE MCSoC 2021, IEEE Globecom 2021, IEEE WTS 2022, DAC 2022, IEEE Globecom 2022, IEEE IGSC 2022, IEEE ICC 2023, IEEE MCSoC 2022, DAC 2023, IEEE WTS 2023, IEEE MCSoC 2023, CODES+ISSS (ESWeek) 2023, IEEE Globecom 2023, IEEE IGSC 2023, ASP-DAC 2024, IEEE ICC 2024, DAC 2024, CODES+ISSS (ESWeek) 2024, IEEE CSR 2024. IEEE IGSC 2024, CODES+ISSS (ESWeek) 2025, IEEE CSR 2025, IEEE MCSoC 2025.
- **Local Organizing Committee** – IEEE ICRERA 2017
- **Committee Chair** – DATE 2018 (Co-chair of A1 Track), DATE 2019 (Co-chair of A1 Track), DATE 2020 (Co-chair of A1

Track), ISNCC 2019 (Co-chair of IoE, Data Analytics and Smart Cities Track)

- **Organizer** – 1st Workshop on Human-in-the-loop Internet of Things Systems 2018 (Hil-IoT 2018)
- **External Reviewer** – EuroSys'14, HPCA'14, ASPLOS'13, IGCC'12, DATE'13, ISLPED'12, ICCAD'12, SECON'13, IGCC'14, DATE'15, ISCA'15, ICDCS'15, ISCC'15, IEEE LCN'15, ICDCS'16.
- NSF Panelist 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026; NASA Panelist 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026; DOE Panelist 2025.