NOVEMBER 3 - 5
DALLAS, TEXAS

2014

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MONDAY NOVEMBER 3

8:30 am – 12:30 pm	**WORKSHOP 1**	Silver

8:30 – 10:00 am   Session Chair: Ziliang Zong

- Practicing Sustainability in Organizations • Nagasushma Devarapalli and Silvia Figueira
- Power Characteristics of Irregular GPGPU Programs • Jared Coplin and Martin Burtscher
- GPU-Centric Communication for Improved Efficiency • Benjamin Klenk, Lena Oden and Holger Froening

10:00 – 10:15 am	**BREAK**	Corridor

10:15 am – 12:15 pm
- Evaluation of Data Placement Method in Database Run-Time Processing Considering Energy Saving and Application Performance • Naho Iimura, Norifumi Nishikawa, Miyuki Nakano and Masato Oguchi
- Energy Characterization and Optimization of Embedded Data Mining Algorithms: a Case Study of the DTW-kNN Framework • Xiaowei Xu, Lu Pu, Hanqing Zhou, Yu Hu, Aosen Wang and Wenyao Xu
- Satisfying Bandwidth Requirements of GPU Architectures through Adaptive Wavelength Division Multiplexing • Benjamin Johnstone and Sonia Lopez Alarcon
- Sched: A Hadoop Workflow Scheduler for Microservers • Krish K. R., M. Safdar Iqbal, M. Mustafa RafiqueGreen

12:15 – 2:00 pm	**LUNCH (ON YOUR OWN)**
2:00 – 3:30 pm	**WORKSHOP 2**	Silver

Session Chair: Dakai Zhu
- A Node Allocation Algorithm for Resilient CPSs Under Energy-Exhaustion Attack • Tam Chantem and Ryan Gerdes
- A Task Morphing Framework For Energy Consumption and Reliability Tradeoffs • Sathish Gopalakrishnan
- Empirical Study of Energy Minimization Issues for Mixed-Criticality Systems with Reliability Constraints • Zheng Li, Xiayu Hua, Chunhui Guo and Shangping Ren

4:30 – 6:00 pm	**WELCOME RECEPTION**	Bronze III

TUESDAY NOVEMBER 4

8:45 – 10:00 am	**TUESDAY KEYNOTE**	Bronze III

- Sustainable Communication & Communication for Sustainability • Radu Marculescu, Carnegie Mellon University

10:00 – 10:30 am	**BREAK**	Corridor
10:30 am – 12:00 pm	**SESSION 1A: EMBEDDED SYSTEMS**	Silver

Session Chair: Amlan Ganguly
- When They Are Not Listening: Harvesting Power from Idle Sensors in Embedded Systems • Woo Suk Lee, Hrishikesh Jayakumar, and Vijay Raghunathan
- Energy Management of Embedded Wireless Systems through Voltage and Modulation Scaling under Probabilistic Workloads • Maryam Bandari, Robert Simon and Hakan Aydin
- Energy-Efficient Parameterized 2-D Separable Convolution on FPGA • Yusong Hu and Viktor K. Prasanna

SESSION 1B: [SPECIAL SESSION] GREEN BUILDING ENERGY ANALYTICS | Gold

Session Chair: Nirmalya Roy
- Predictability of Energy Use in Homes • David Lachut, Nilanjan Banerjee and Sami Rollins
- Energy-Comfort Optimization using Discomfort History and Probabilistic Occupancy Prediction • Abhinandan Majumdar, Jason L. Setter, Justin R. Dobbs, Brandon M. Hencey and David H. Albonesi
- iDES: Incentive-Driven Distributed Energy Sharing in Sustainable Microgrids • Weigang Zhong, Zhichuan Huang, Ting Zhu, Yu Gu, Qingquan Zhang, Ping Yi, Dingde Jiang and Sheng Xiao

12:00 – 1:30 pm	**LUNCH**	Bronze III
1:30 – 3:00 pm	**SESSION 1C: [SPECIAL SESSION] DATA CENTERS IN THE SMART GRID I**	Silver

Session Chair: Girish Ghatikar
- Opportunities and Challenges for Data Center Demand Response • Adam Wierman, Zhenhua Liu, Iris Liu and Hamed Mohsenian-Rad
- Reducing the Data Center Electricity Costs Through Participation in Smart Grid Programs • Hao Chen, Michael Caramanis and Ayse Coskun
- Right Time in Right Place: Taming Workload Balancing Oscillations in Internet Data Center Cost Management • Xi Chen, Lei Rao, Xue Liu, Hongxing Li and Xinbing Wang

SESSION 1D: ENERGY STORAGE | Gold

Session Chair: Wenyao Xu
- Design and Management of Hybrid Electrical Energy Storage Systems for Regulation Services • Younghyun Kim, Vijay Raghunathan and Anand Raghunathan
- Intelligent Joint Spatio-Temporal Management of Electric Vehicle Charging and Data Center Power Consumption • Dan Zhonghao Sun, Fanxin Kong, Xue Liu, Xingshe Zhou and Xi Chen
- GreenColo: A Novel Incentive Mechanism for Minimizing Carbon Footprint in Colocation Data Center • Mohammad Islam, Shaolei Ren and Xiaorui Wang
- One Charge for One Week: Hype or Reality? • Youhuizi Li, Bing Luo, Hui Chen and Weisong Shi

TUESDAY NOVEMBER 4

| 3:00 – 3:30 pm | BREAK | Corridor |

SESSION 1E: [SPECIAL SESSION] DATA CENTERS IN THE SMART GRID II | Silver
3:30 – 5:00 pm

Session Chair: Ayse Coskun

- Load Management of Data Centers as Regulation Capacity in Denmark • Anders Clausen, Girish Ghatikar and Bo Nørregaard Jørgensen

- An Optimization Framework for Data Centers to Minimize Electric Bill under Day-Ahead Dynamic Energy Prices While Providing Regulation Services • Majid Ghasemi-Gol, Yanzhi Wang and Massoud Pedram

- Placement Optimization of Liquid-Cooled Servers for Power Minimization in Data Centers • Li Li, Wenli Zheng, Xiaodong Wang and Xiaorui Wang

SESSION 1F: POWER-AWARE COMPUTING | Gold

Session Chair: Weisong Shi

- Good Practices in the Use of ICT Equipment for Electricity Savings at a University Campus • Andreas Kamilaris, Dang Truong Hoang Ngan, Alexandros Pantazaras, Balaji Kalluri and Sekhar Kondepudi

- Evaluation of Linear and Non-linear Machine Learning Approaches for Power Estimation in a Computing Cluster • Hao Zhu, Paola Grosso, Xiangke Liao and Cees De Laat

- Thermal, Power, and Co-Location Aware Resource Allocation in Heterogeneous Computing • Mark Oxley, Eric Jonardi, Sudeep Pasricha, Anthony Maciejewski, Greg Koenig and Howard Siegel

| 5:00 – 6:30 pm | HAPPY HOUR | Bronze III |

WEDNESDAY NOVEMBER 5

| 9:00 – 10:00 am | WEDNESDAY KEYNOTE | Bronze III |

- Modeling Performance and Power: Methodologies, Tools, and Tradeoffs • Adolfy Hoisie, Pacific Northwest National Laboratory

| 10:00 – 10:30 am | BREAK | Corridor |

SESSION 2A: ENERGY-EFFICIENT CIRCUITS AND SYSTEMS | Silver
10:30 am – 12:00 pm

Session Chair: Sahra Sedigh

- Temperature-Aware Wireless Network-on-Chip Architecture • Md Shahriar Shamim, Aniket Mhatre, Naseef Mansoor, Amlan Ganguly and Gill Tsouri

- 7nm FinFET Standard Cell Layout Characterization and Power Density Prediction in Near- and Super-Threshold Voltage Regimes • Tiansong Cui, Qing Xie, Yanzhi Wang, Shahin Nazarian and Massoud Pedram

- Complexity-Theoretic Obstacles to Achieving Energy Savings with Near-Threshold Computing • Neal Barcelo, Kirk Pruhs, Antonios Antoniadis, Michael Nugent and Michele Scquizzato

SESSION 2B: SENSORS | Gold

Session Chair: Kirk Pruhs

- InfiniTime: A Multi-Sensor Energy Neutral Wearable Bracelet • Michele Magno, Danilo Porcarelli, Davide Brunelli and Luca Benini

- An Advanced Heterogeneity-aware Centralized Energy Efficient Clustering Routing Protocol for Wireless Sensor Networks • Ehsan Ilah Munir, Muhammad Aslam, Tauseef Shah and M. Mustafa Rafique

- Towards Eco-Friendly Home Networking • Mathias Gibbens, Chris Gniady and Beichuan Zhang

| 12:00 – 1:30 pm | LUNCH | Bronze III |

| 1:30 – 3:00 pm | SESSION 2C: GREEN SYSTEMS | Silver |

Session Chair: Younghyun Kim

- Phone Batteries Draining: Is GWeB (Green Web Browsing) the Solution? • Delfina Malandrino, Salvatore D'Ambrosio, Salvatore De Pasquale, Gerardo Iannone, Alberto Negro, Giovanni Patimo, Andrea Petta, Vittorio Scarano, Luigi Serra and Raffaele Spinelli

- System Architecture Support for Green Enterprise Computing • Maria Kazandjieva, Chinmayee Shah, Ewen Cheslack-Postava, Behram Mistree and Philip Levis

- Power-Efficient Resource Management for Co-Located Visualized Web Servers: A Stochastic Control Approach • Xiaoyu Shi, Jin Dong, Seddik M. Djouadi, Yefu Wang, Xiao Ma and Yong Feng

SESSION 2D: ENERGY-EFFICIENT COMPUTING | Gold

Session Chair: Dakai Zhu

- A Configurable Quantized Compressed Sensing Architecture for Low-power Tele-Monitoring • Aosen Wang and Wenyao Xu

- A Comparison of Nine Heuristic Algorithms for Joint Optimization of Performance, Energy, and Temperature in Allocating Tasks to Multicore Processors • Hafiz Fahad Sheikh and Ishfaq Ahmad

- Understanding the Power-Performance Tradeoff through Pareto Analysis of Live Performance Data • Junya Michanan, Rinku Dewri and Matthew J. Rutherford

- EEP2P: An Energy-Efficient and Economy-Efficient P2P Network Protocol • Ziqiao Zhou, Mengjun Xie, Ting Zhu, Wei Xu, Ping Yi, Zhichuan Huang, Qingquan Zhang, and Sheng Xiao

WEDNESDAY NOVEMBER 5

| 3:00 – 3:30 pm | **BREAK** | **Corridor** |
| 3:30 – 5:30 pm | **WIP SESSION 2E** | **Silver** |

Session Chair: Ali Hurson

- Algorithmic Optimizations for Energy Efficient Throughput-Oriented FFT Architectures on FPGA • Ren Chen and Viktor Prasanna

- NVP: Non-Uniform Voltage and Pulse Width Settings for Power Efficient Hybrid STT-RAM • Reyhaneh Jabbarvand Behrouz and Houman Homayoun

- FoREST-mn: Runtime DVFS Beyond Communication Slack • Jean-Philippe Halimi, Benoit Pradelle, Amina Guermouche and William Jalby

- Energy Neutral Hybrid Cooling System for High Performance Processors • Luca Rizzon, Maurizio Rossi, Roberto Passerone and Davide Brunelli

- Energy-Aware Resource Management of Virtual Machines under Thermal and Placement Constraints • Hideaki Hashimoto, Keigo Matsuo, Kazuaki Chikira, Masayuki Nakamura and Joji Urata

- High Level Performance Model Based Design Space Exploration for Energy-Efficient Designs on FPGAs • Sanmukh R Kuppannagari, Yusong Hu and Viktor K Prasanna
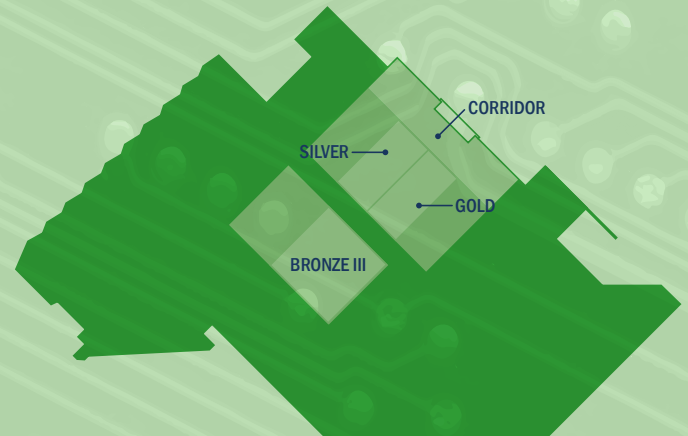
| **WIP SESSION 2F** | **Gold** |

Session Chair: Ishfaq Ahmad

- Program Energy Efficiency: The Impact of Language, Compiler and Implementation Choices • Sarah Abdulsalam, Donna Lakomski, Qijun Gu, Tongdan Jin, and Ziliang Zong

- Greening Web Servers: A Case for Ultra Low-power Web Servers • Benoy Varghese, Niklas Carlsson, Guillaume Jourjon, Anirban Mahanti, and Prashant Shenoy

- Efficient Customer Selection for Sustainable Demand Response in Smart Grids • Vasileios Zois, Marc Frincu, Charalampos Chelmis, Muhammad Rizwan Saeed, and Viktor Prasanna

- Leveraging Distributed UPS Energy for Managing Solar Energy Powered Data Centers • Longjun Liu, Hongbin Sun, Yang Hu, Jingmin Xin, Nanning Zheng, and Tao Li

- A Performance Enforcing Mechanism for Energy- and Failure-Aware Cloud Systems • Altino Sampaio and Jorge Barbosa

- Carbon-Aware Path Provisioning for NRENs • Karel van der Veldt, Inder Monga, Jon Dugan, Cees de Laat, and Paola Grosso

SESSION LOCATIONS

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