



Volume 18, Issue 1  
SummerFall '18

# CECS eNEWS



Center for Embedded and Cyber-physical Systems, University of California, Irvine

## Professors Nikil Dutt, Marco Levorato, and others Awarded \$2.1 million by National Science Foundation

### Highlights

- Professor Harris Awarded NSF Grant
- Awards and Honors
- Student Profile
- Visitor Profile
- Lectures and Seminars

### Inside this Issue:

Professors Dutt, Levorato, and Rahmani awarded NSF grant	1
Awards and Honors	2-3
Graduate Student Profile	4
Visitor Profile	4
CECS Seminars	5-6
Publications	7-12



CECS and Computer Science Professors Nikil Dutt, Marco Levorato and Amir Rahmani along with Nursing Professor Yuqing Guo have been awarded a \$2.1 million grant by the National Science Foundation to improve maternal care in

underserved communities. They will explore the intersection of technology and healthcare in a community-focused setting.

The UCI team aims to use technology in order to help underserved expectant mothers better monitor their health. Professor Amir Rahmani will also be a part of this team because of his groundbreaking research in ubiquitous monitoring, early detection and prevention system for everyday use by mothers at risk for preterm birth. The team aims to promote maternal and neonatal health with families who have little access to healthcare resources.

Community enhancement is a key element of this project because the researchers believe that expectant mothers have a social network around them that affects different contexts of their lifestyles. Community organizations such as MOMS OC will incorporate smart monitoring intervention to offer personalized feedback for these lifestyles.

They hope to have a model that can be replicated across other communities and applied in different societal contexts. Congratulations, Professors!



National Science Foundation  
WHERE DISCOVERIES BEGIN



# Awards and Honors

## Professor Tsudik and Burtsev Awarded NSF Grant to Secure Large-Scale Cloud Computing



CECS Professor Gene Tsudik and Computer Science Professor Anton Burtsev were recently awarded a \$1 million grant from the National Science Foundation in order to secure large-scale scientific cloud computing. The Horizon project will be a part of the NSF Cybersecurity Innovation for Cyberinfrastructure program created to “develop, deploy and integrate security solutions that benefit the scientific community by ensuring integrity, resilience and reliability of the end-to-end scientific workflow.

Tsudik and Burtsev aim to provide data and computation security through strong isolation on end-hosts, fine-grained isolation in the cloud network, and cloud-wide information flow control. They plan to develop it using entirely open-source components and to make it freely available to scientists in both academia and industry.



Tsudik’s research interests lie in privacy, computer and network security, and applied cryptography so this project will utilize his research interests to develop cloud security.

## Professor Ian Harris Awarded NSF Grant to Detect Social Engineering Attacks



CECS Professor Ian Harris has been awarded nearly \$500,000 by the National Science Foundation in order to study the growing threat of social engineering attacks. Social engineering poses a critical threat to information security, and “targets the weakest link in the system, the human actors,” as Harris explains.

This grant will allow Harris to confront the problem of social engineering by developing automated approaches to detect social engineering attacks in real time and alert the victim before any harm can occur. Understanding natural language techniques and leveraging question answering can lead to identifying conversational statements with malicious intent. This is possible since the attacker must always perform one or two dialog actions.

This work will also result in a large corpus of non-phishing social engineering attacks in the form of audio recordings and written transcripts, which will be made publicly available to support further research into the topic and development of courses on social engineering attacks.

Congratulations, Professor Ian Harris!

## Awards and Honors

### Professor Bruce Tromberg Chosen to Lead National Institutes of Biomedical Imaging and Bioengineering



UCI Professor of biomedical engineering and surgery Bruce J. Tromberg has been chosen by the National Institutes of Health to head the National Institute of Biomedical Imaging and Bioengineering. It is one of the 27 institutes and centers under the NIH, and Tromberg will lead as NIBIB's second director in early 2019.

Tromberg's duties consist of managing NIBIB's \$378 million annual budget and supervising about 230 employees who conduct or support R&D of new biomedical imaging and bioengineering techniques

to improve the detection, treatment, and prevention of disease. He has been principal investigator for over \$45 million in sponsored research projects and has trained more than 0 graduate students and fellows with expertise in various subjects such as neuroscience.

Congratulations, Professor Tromberg!

### Distinguished Professor Alexandru Nicolau Elected into Academia Europaea



Distinguished Professor of Computer Science and Department Chair Alexandru Nicolau has been elected into the Academia Europaea, Europe's academy of humanities, letters and sciences.

The Academia Europaea was founded in 1988, and comprises of esteemed scientists and scholars who aim to promote learning, education, and research. There is also a rigorous review process in order to be selected to be part of this excellent academy. Members of the AE include 73 Nobel Laureates and 6 Turing winners.

Professor Nicolau is one of only 17 members from the U.S. in a computing-related field. His research interests align with parallelizing compilers and high-performance, power-aware and reconfigurable computing.

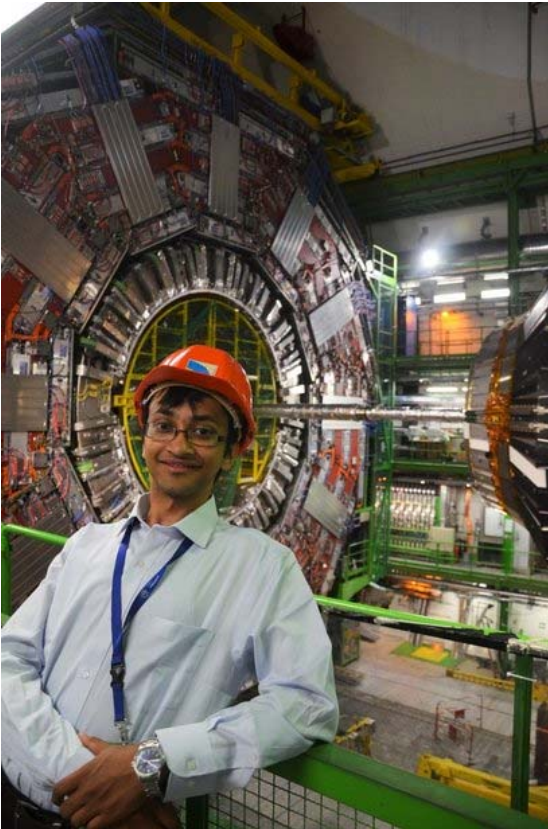
"Unlike other academies that represent individual countries," Nicolau notes, "the Academia Europaea is continentwide, so I feel honored to be recognized at this broad, international level."

Congratulations, Professor Alexandru Nicolau!



# Visitor and Student Profile

## Graduate Student Profile: Biswadip Maity



Biswadip Maity is a first-year MS/PhD student with a focus in Embedded Systems at the Donald Bren School of Information and Computer Science at UC Irvine. He received his Bachelor's degree from Jadavpur University, India in Computer Science and Engineering. He was awarded the Charpak Fellowship in 2014 by the French government for summer research at Grenoble INP. He has also worked on a platform for multi-robot systems and their intercommunication.

Biswadip was employed by Microsoft India in the Search Technology team before joining UCI. Some of his responsibilities there as a developer included mining user logs and drilling down to optimize each resource being sent to the client. Currently, he is working under the guidance of Professor Nikil Dutt in the Dutt Research Group at UCI. He also serves as a teaching assistant for courses such as Introduction to IoT, Systems Programming, and Operating Systems.

## Visitor Profile: Florian Maurer



Florian Maurer is a MS student in Electrical Engineering at the Technical University of Munich. His interests lie in hardware design, and he mainly focuses on hardware development of system-on-chip during his MS studies. He developed a FPGA-based serial to parallel interface for a proprietary protocol at Dr. Johannes Heidenhain GmbH. Maurer has also tutored several labs in which he supported students in using the provided toolchains and software for developing, as well as explained to them the technical background of the lab setups.

He is currently a visiting scholar working with Professor Nikil Dutt and Professor Andreas Herkersdorf to create a hardware prototype to investigate the interaction between learning classifier tables (LCTs) and supervisory control theory (SCT).

# CECS Lectures and Seminars

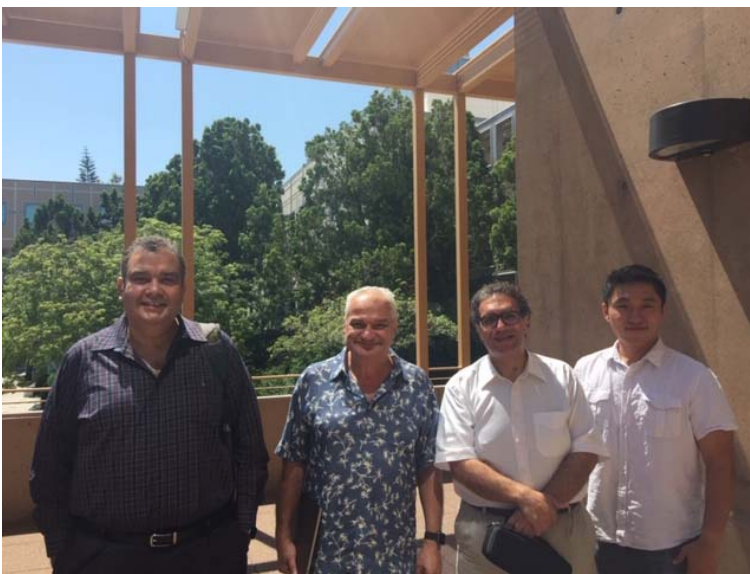
## CECS Seminar—Prof. Takeshi Matsumoto



On Friday, September 7, Professor Takeshi Matsumoto held a seminar titled “SAT-based Design Debugging and Its Application to Undergraduate Circuit Experiment.” The talk centers around automating and shortening the debugging process of VLSI designs. The talk also includes a trial activity to apply these debugging methods to undergraduate experiments.

Professor Takeshi Matsumoto is an Associate Professor in the Department of Electronics and Information Engineering at the National Institute of Technology, Ishikawa, Japan. He received his M.S. and Ph.D. degrees in Electronic Engineering from the University of Tokyo, Japan in 2005 and 2008, respectively. His research interests align with formal verification of system-level designs, automated debugging and debugging support for pre- and post- silicon circuits, education and teaching materials on electric and electronic circuits.

## CECS Seminar—Prof. Khaled Salama



On Friday, August 3, Professor of Electrical Engineering Khaled Salama held a seminar titled “Sensors: Innovation at Intersections.” This seminar centers around energy efficiency of wireless sensor nodes as well as how to minimize energy consumption to avoid battery replacement and enable the device to survive on energy harvested from the ambient.

Professor Khaled Salama is a Professor of Electrical Engineering at KAUST, Saudi Arabia. His work on CMOS sensors has been funded by the National Institute of Health and DARPA. He is also the author of 200 papers

and 14 US patents on low-power mixed-signal circuits for intelligent fully integrated sensors and neuromorphic circuits using memristor devices.

# CECS Lectures and Seminars

## CECS Seminar—Matthew Walker



On Friday, July 27, PhD student Matthew Walker held a CECS Seminar titled “Accurate and Stable CPU Power Modeling and Run-Time System Management.” The talk centers around Walker’s experience with CPU modeling and run-time management. He also presents three open-source software tools for developing power models on mobile devices, calibrating performance and energy models in the gem5 framework, and developing run-time management algorithms.

Matthew Walker received his Master’s of Engineering degree in Electronic Engineering from the University of Southampton, UK in 2013. He has completed two internships at Arm, UK in 2015 and 2018. He is currently in his 4th year of his PhD at the University of Southampton researching CPU modeling techniques and run-time management approaches.

## CECS Seminar—Tinoosh Mohsenin



On Friday, July 20, Professor Tinoosh Mohsenin held a CECS Seminar titled “Efficient Processing when Intelligence Moves to the Edge.” The talk highlights how wearable sensors, Internet of Things devices and cyber physical systems face a number of challenges for use in daily life. Mohsenin presents research solutions that enable efficient processing of machine learning tasks to improve energy efficiency. She believes these solutions will allow designers to rapidly prototype and deploy the next generation of sophisticated and intelligent systems for efficient edge processing in extreme environments.

Tinoosh Mohsenin is an Assistant Professor in the Department of Computer Science and Electrical Engineering at the University of Maryland Baltimore County. She received her Ph.D. from the University of California, Davis in 2010 and her M.S. from Rice University in 2004 in Electrical and Computer Engineering. She currently leads 8 research projects in her lab which are all funded by the National Science Foundation.



# Publications

## Publications

The following papers were published by CECS affiliates from Jul 2018 through Dec 2018 (and unreported papers from previous eNews).

- | <b>Author, Title, Publication</b>  | <b>Conference Proceedings</b>                        |
|--|--|
| Cheng-Ting Lee, Yun-Hao Liang, Pai H. Chou, Ali Heydari Gorji, Seyede Mahya Safavi, Wen-Chan Shih, Wen-Tsuen Chen: <b>EcoMicro: A Miniature Self-Powered Inertial Sensor Node Based on Bluetooth Low Energy.</b>               | ISLPED 2018: 30:1-30:6, July 23-25, 2018             |
| Brvan Donvanavard, Amir Mahdi Hosseini Monazzah, Nikil D. Dutt, Tiago Mück: <b>Exploring Hybrid Memory Caches in Chip Multiprocessors.</b>   | ReCoSoC 2018: 1-8, July 9-11, 2018                   |
| Jie Tang, Shaoshan Liu, Songwen Pei, Stéphane Zuckerman, Chen Liu, Weisong Shi, Jean-Luc Gaudiot: <b>Teaching Autonomous Driving Using a Modular and Integrated Approach.</b>  | COMPSAC (1)2018: 361-366, July 23-27, 2018           |
| Hamid Mirzaei, Guni Sharon, Stephen D. Boyles, Tony Givargis, Peter Stone: <b>Link-based Parameterized Micro-tolling Scheme for Optimal Traffic Management.</b>  | AAMAS2018: 2013-2015, July 10-15, 2018               |
| Gill Barequet, Minati De, Michael T. Goodrich: <b>Computing Convex-Straight-Skeleton Voronoi Diagrams for Segments and Convex Polygons.</b>  | COCOON 2018: 130-142, July 2-4, 2018                 |
| Juan José Besa Vial, William E. Devanny, David Eppstein, Michael T. Goodrich, Timothy Johnson: <b>Optimally Sorting Evolving Data.</b>   | ICALP 2018: 81:1-81:13, July 9-13, 2018              |
| Gill Barequet, David Eppstein, Michael T. Goodrich, Nil Mamano: <b>Stable-Matching Voronoi Diagrams: Combinatorial Complexity and Algorithms.</b>  | ICALP 2018: 89:1-89:14, July 9-13, 2018              |
| Hosein Mohammadi Makrani, Hossein Sayadi, Sai Manoj P. D., Setareh Rafatirad, Houman Homayoun: <b>Compressive Sensing on Storage Data: An Effective Solution to Alleviate I/O Bottleneck in Data- Intensive Workloads.</b>     | ASAP 2018: 1-8, July 10-12, 2018                     |
| Hosein Mohammadi Makrani, Hossein Sayadi, Devang Motwani, Han Wang, Setareh Rafatirad, Houman Homayoun: <b>Energy-aware and Machine Learning-based Resource Provisioning of In-Memory Analytics on Cloud.</b>                  | SoCC 2018: 517, October 11-13, 2018                  |
| Hossein Sayadi, Hosein Mohammadi Makrani, Onkar Randive, Sai Manoj Pudukotai Dinakarrao, Setareh Rafatirad, Houman Homayoun: <b>Customized Machine Learning-Based Hardware-Assisted Malware Detection in Embedded Devices.</b> | TrustCom/BigDataSE 2018: 1685-1688, August 1-3, 2018 |

# Publications

## Publications

The following papers were published by CECS affiliates from Jul 2018 through Dec 2018 (and unreported papers from previous eNews).

- | Author, Title, Publication  | Conference Proceedings  |
|---|---|
| Hadi Mardani Kamali, Kimia Zamiri Azar, Kris Gaj, Houman Homayoun, Avesta Sasan:                            | <b>LUT-Lock: A Novel LUT-Based Logic Obfuscation for FPGA-Bitstream and ASIC-Hardware Protection.</b> ISVLSI 2018: 405-410, July 8-11, 2018                                 |
| Zahraa Marafie, Kwei-Jay Lin, Yanlong Zhai, Jing Li:  | <b>ProActive Fintech: Using Intelligent IoT to Deliver Positive InsurTech Feedback.</b> CBI (2) 2018: 72-81, July 11-14, 2018   |
| Sajjad Taheri, Alexander V. Veidenbaum, Alexandru Nicolau, Ningxin Hu, Mohammad R. Haghighat:               | <b>OpenCV.js: computer vision processing for the open web platform.</b> MMSys 2018: 478-483, June 12-15, 2018   |
| Baojun Liu, Chaoyi Lu, Hai-Xin Duan, Ying Liu, Zhou Li, Shuang Hao, Min Yang:                               | <b>Who Is Answering My Queries: Understanding and Characterizing Interception of the DNS Resolution Path.</b> USENIX Security Symposium 2018: 1113-1128, August 15-17, 2018 |
| Zhihao Yao, Saeed Mirzamohammadi, Ardalan Amiri Sani, Mathias Payer:  | <b>Milkomeda: Safeguarding the Mobile GPU Interface Using WebGL Security Checks.</b> CCS 2018: 1455-1469, October 15-19, 2018   |
| Seyed Mohammadjavad Seyed Talebi, Hamid Tavakoli, Hang Zhang, Zheng Zhang, Ardalan Amiri Sani, Zhiyun Qian: | <b>Charm: Facilitating Dynamic Analysis of Device Drivers of Mobile Systems.</b> USENIX Security Symposium 2018: 291-307, August 15-17, 2018                                |
| Davit Hovhannisyan, Ahmed M. Eltawil, Mohammad Abdullah Al Faruque, Fadi J. Kurdahi:                        | <b>Circuit Inspired Modeling Method for Irrigation.</b> DSD 2018: 328-335, August 29-31, 2018   |
| Hirak J. Kashyap, Georgios Detorakis, Nikil D. Dutt, Jeffrey L. Krichmar, Emre Neftci:                      | <b>A Recurrent Neural Network Based Model of Predictive Smooth Pursuit Eye Movement in Primates.</b> IJCNN 2018: 1-8, July 8-13, 2018                                       |
| Hoda Naghibijouybari, Ajaya Neupane, Zhiyun Qian, Nael B. Abu-Ghazaleh:                                     | <b>Rendered Insecure: GPU Side Channel Attacks are Practical.</b> ACM Conference on Computer and Communications Security 2018: 2139-2153, October 15-19, 2018               |
| Sabur Baidya, Zoheb Shaikh, Marco Levorato:   | <b>FlyNetSim: An Open Source Synchronized UAV Network Simulator based on ns-3 and Ardupilot.</b> MSWiM 2018: 37-45, October 28-November 2                                   |

continued on next page...



# Publications

## Publications

The following papers were published by CECS affiliates from Jul 2018 through Dec 2018 (and unreported papers from previous eNews).

### Author, Title, Publication

### Conference Proceedings

Ali Eker, Barry Williams, Nitesh Mishra, Dushyant Thakur, Kenneth Chiu, Dmitry Ponomarev, Nael B. Abu-Ghazaleh: **Performance Implications of Global Virtual Time Algorithms on a Knights Landing Processor**. DS-RT 2018: 1-10, October 15-17, 2018

Farzad Khorasani, Hodjat Asghari Esfeden, Nael B. Abu-Ghazaleh, Vivek Sarkar: **In-Register Parameter Caching for Dynamic Neural Nets with Virtual Persistent Processor Specialization**. MICRO 2018: 377-389, October 20-24, 2018

Esmail Mohammadian Koruyeh, Khaled N. Khasawneh, Chengyu Song, Nael B. Abu-Ghazaleh: **Spectre Returns! Speculation Attacks using the Return Stack Buffer**. WOOT @ USENIX Security Symposium 2018, August 13-14, 2018

Seyyed Ahmad Razavi, Eli Bozorgzadeh, Kanghee Kim, Solmaz Kia: **Resource-Aware Decentralization of a UKF-Based Cooperative Localization for Networked Mobile Robots**. DSD 2018: 296-303, August 29-31, 2018

Cheng-Ting Lee, Yun-Hao Liang, Pai H. Chou, Ali Heydari Gorji, Seyede Mahya Safavi, Wen-Chan Shih, Wen-Tsuen Chen: **EcoMicro: A Miniature Self-Powered Inertial Sensor Node Based on Bluetooth Low Energy**. ISLPED 2018: 30:1-30:6, July 23-25, 2018

Rahmadi Trimananda, Ali Younis, Bojun Wang, Bin Xu, Brian Demsky, Guoqing Harry Xu: **Vigilia: Securing Smart Home Edge Computing**. SEC 2018: 74-89, October 25-27, 2018

Zhongqi Cheng, Tim Schmidt, Rainer Dömer: **SystemC Coding Guideline for Faster Out-of-order Parallel Discrete Event Simulation**. FDL 2018: 5-16, September 10-12, 2018

Kasra Moazzemi, Anil Kanduri, David Juhasz, Antonio Miele, Amir M. Rahmani, Pasi Liljeberg, Axel Jantsch, Nikil D. Dutt: **Trends in On-chip Dynamic Resource Management**. DSD 2018: 62-69, August 29-31, 2018

Mohaned Qunaibit, Stefan Brunthaler, Yeoul Na, Stijn Volckaert, Michael Franz: **Accelerating Dynamically-Typed Languages on Heterogeneous Platforms Using Guards Optimization**. ECOOP 2018: 16:1-16:29, July 16-21, 2018

# Publications

## Publications

The following papers were published by CECS affiliates from Jul 2018 through Dec 2018 (and unreported papers from previous eNews).

### Author, Title, Publication

### Conference Proceedings

Hamid Mirzaei, Guni Sharon, Stephen D. Boyles, Tony Givargis, Peter Stone: **Link-based Parameterized Micro-tolling Scheme for Optimal Traffic Management**. AAMAS2018: 2013-2015, July 10-15, 2018

Hamid Mirzaei, Guni Sharon, Stephen D. Boyles, Tony Givargis, Peter Stone: **Enhanced Delta-tolling: Traffic Optimization via Policy Gradient Reinforcement Learning**. ITSC 2018: 47-52, November 4-7, 2018

Michael T. Goodrich, Timothy Johnson: **Low Ply Drawings of Trees and 2-Trees**. CCCG 2018: 2-10, August 8-10, 2018

David Eppstein, Michael T. Goodrich, Jordan Jorgensen, Manuel R. Torres: **Geometric Fingerprint Recognition via Oriented Point-Set Pattern Matching**. CCCG 2018: 98-113, August 8-10, 2018

Gill Barequet, Minati De, Michael T. Goodrich: **Computing Convex-Straight-Skeleton Voronoi Diagrams for Segments and Convex Polygons**. COCOON 2018: 130-142, July 2-4, 2018

Juan José Besa Vial, William E. Devanny, David Eppstein, Michael T. Goodrich, Timothy Johnson: **Optimally Sorting Evolving Data**. ICALP 2018: 81:1-81:13, July 9-13, 2018

Po T. Wang, Colin M. McCrimmon, Payam Heydari, An H. Do, Zoran Nenadic: **Subspace-Based Suppression of Cortical Stimulation Artifacts**. EMBC 2018: 2426-2429, July 18-21, 2018

Jeffrey Lim, Po T. Wang, Alireza Karimi-Bidhendi, Omid Malekzadeh-Arasteh, Susan J. Shaw, Michelle Armacost, Hui Gong, Charles Y. Liu, Payam Heydari, An H. Do, Zoran Nenadic: **Characterization of Stimulation Artifact Behavior in Simultaneous Electrocardiography Grid Stimulation and Recording**. EMBC 2018: 4748-4751, July 18-21, 2018

Max Willian Soares Lima, Horacio A. B. Fernandes de Oliveira, Eulanda Miranda dos Santos, Edleno Silva de Moura, Rafael Kohler Costa, Marco Levorato: **Efficient and Robust WiFi Indoor Positioning Using Hierarchical Navigable Small World Graphs**. NCA 2018: 1-5, November 1-3, 2018

# Publications

## Publications

The following papers were published by CECS affiliates from Jul 2018 through Dec 2018 (and unreported papers from previous eNews).

### Author, Title, Publication

### Journal Publications

Korosh Vatanparvar, Mohammad Abdullah Al Faruque: **Design and Analysis of Battery-Aware Automotive Climate Control for Electric Vehicles**. ACM Trans. Embedded Comput. Syst. 17 (4): 74:1-74:22 (2018), September 2018

Michael Opoku Agyeman, Ali Ahmadinia, Nader Bagherzadeh: **Energy and performance-aware application mapping for inhomogeneous 3D networks-on-chip**. Journal of Systems Architecture - Embedded Systems Design 89: 103-117 (2018). September 2018

Chen-Ying Hsieh, Jurn-Gyu Park, Nikil D. Dutt, Sung-Soo Lim: **MEMCOP: memory-aware co-operative power management governor for mobile games**. Design Autom. for Emb. Sys. 22(1-2): 95-116 (2018), June 2018

Hasan Erdem Yantir, Ahmed M. Eltawil, Smaïl Niar, Fadi J. Kurdahi: **Power optimization techniques for associative processors**. Journal of Systems Architecture - Embedded Systems Design 90: 44-53 (2018), October 2018

Katayoun Neshatpour, Maria Malik, Avesta Sasan, Setareh Rafatirad, Tinoosh Mohsenin, Hassan Ghasemzadeh, Houman Homayoun: **Energy-efficient acceleration of MapReduce applications using FPGAs**. J. Parallel Distrib. Comput. 119: 1-17 (2018), September 2018

Sina Shahhosseini, Kasra Moazzemi, Amir M. Rahmani, Nikil D. Dutt: **On the feasibility of SISO control-theoretic DVFS for power capping in CMPs**. Microprocessors and Microsystems - Embedded Hardware Design 63: 249-258 (2018), November 2018

Zhenqiu Huang, Kwei-Jay Lin, Bo-Lung Tsai, Surong Yan, Chi-Sheng Shih: **Building edge intelligence for online activity recognition in service-oriented IoT systems**. Future Generation Comp. Syst. 87: 557-567 (2018), October 2018

M. Mohamed Asan Basiri, Sandeep K. Shukla: **Low power hardware implementations for network packet processing elements**. Integration 62: 170-181 (2018), June 2018

Xuhua\_Ding, Gene Tsudik: **Initializing trust in smart devices via presence attestation**. Computer Communications 131: 35-38 (2018), October 2018

Fatemeh Khodaparast, Midia Reshadi, Nader Bagherzadeh: **Application partitioning and mapping for bypass channel based NoC**. Computers & Electrical Engineering 71: 676-691 (2018)



# Publications

## Publications

The following papers were published by CECS affiliates from Jul 2018 through Dec 2018 (and unreported papers from previous eNews).

### Author, Title, Publication

### Other Publications

David Eppstein, Michael T. Goodrich, Jordan Jorgensen, Manuel R. Torres: **Geometric Fingerprint Recognition via Oriented Point-Set Pattern Matching**. CoRR abs/1808.00561 (2018), August 2018

Michael T. Goodrich, Timothy Johnson: **Low Ply Drawings of Trees and 2-Trees**. CoRR abs/1808.03139, August 2018

Georgios Detorakis, Travis Bartley, Emre Neftci: **Contrastive Hebbian Learning with Random Feedback Weights**. CoRR abs/1806.07406 (2018), August 2018

Esmail Mohammadian Koruyeh, Khaled N. Khasawneh, Chengyu Song, Nael B. Abu-Ghazaleh: **Spectre Returns! Speculation Attacks using the Return Stack Buffer**. CoRR abs/1807.07940 (2018), July 2018

Jiang Wan, Blake S. Pollard, Sujit Rokka Chhetri, Palash Goyal, Mohammad Abdullah Al Faruque, Arquimedes Canedo: **Future Automation Engineering using Structural Graph Convolutional Neural Networks**. CoRR abs/1808.08213 (2018), August 2018

Sabur Baiya, Zoheb Shaikh, Marco Levorato: **FlyNetSim: An Open Source Synchronized UAV Network Simulator based on ns-3 and Ardupilot**. CoRR abs/1808.04967 (2018), August 2018

N. Asokan, Thomas Nyman, Norrathep Rattanaivanon, Ahmad-Reza Sadeghi, Gene Tsudik: **ASSURED: Architecture for Secure Software Update of Realistic Embedded Devices**. CoRR abs/1807.05002 (2018), July 2018

Karim Eldefrawy, Ivan Oliveira Nunes, Norrathep Rattanaivanon, Michael Steiner, Gene Tsudik: **Formally Verified Hardware/Software Co-Design for Remote Attestation**. CoRR abs/1811.00175 (2018), November 2018

Jacques Kaiser, Hesham Mostafa, Emre Neftci: **Synaptic Plasticity Dynamics for Deep Continuous Local Learning**. CoRR abs/1811.10766 (2018), November 2018

# Publications

## Publications

The following papers were published by CECS affiliates from Jul 2018 through Dec 2018 (and unreported papers from previous eNews).

### Author, Title, Publication

### Other Publications

Yunhui Guo, Honghui Shi, Abhishek Kumar, Kristen Grauman, Tajana Rosing, Rogério Schmidt Feris: **SpotTune: Transfer Learning through Adaptive Fine Tuning**. CoRR abs/1811.08737 (2018), November 2018

Max I. Kanovich, Tajana Ban Kirigin, Vivek Nigam, Andre Scedrov, Carolyn L. Talcott: **Compliance in Real Time Multiset Rewriting Models**. CoRR abs/1811.04826 (2018)

Jeffrey L. Krichmar, William Severa, Salar M. Khan, James L. Olds: **Making BREAD: Biomimetic strategies for Artificial Intelligence Now and in the Future**. CoRR abs/1812.01184 (2018)

Ang Li, Christos Masouros, A. Lee Swindlehurst: **1-Bit Massive MIMO Downlink Based on Constructive Interference**. CoRR abs/1810.12039, October 2018

Ang Li, Christos Masouros, Yonghui Li, Branka Vucetic, A. Lee Swindlehurst: **Interference Exploitation Precoding for Multi-Level Modulations: Closed-Form Solutions**. CoRR abs/1811.03289, November 2018

# CECS—promoting creativity and pursuing discovery!

Center for Embedded and Cyber-Physical Systems, University of California, Irvine



## **CECS Mission Statement:**

*To conduct leading-edge interdisciplinary research in embedded systems emphasizing automotive, communications, and medical applications, and to promote technology and knowledge transfer for the benefit of the individual and society.*



## **CECS eNews**

Center for Embedded and Cyber-Physical Systems  
3211 Engineering Hall  
University of California, Irvine  
Email: [enews@cecs.uci.edu](mailto:enews@cecs.uci.edu)

## **CECS Research Advisory Board**

Dr. Sanjiv Narayan,  
Vice President & Managing Director,  
Calypto Design Systems, New Delhi, India

Dr. Dinesh Ramanathan,  
Executive Vice President, Cypress Semiconductor, San Jose, CA

Dr. Yervant Zorian,  
Chief Architect, Synopsys Inc., Fremont, CA

