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CECS eNEWS

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

Inside this Issue:

UCI/CECS Signs MOU with Kookmin University

CECS Director Fadi Kurdahi and Sanghwan Lee, Dean for the College of Computer Science, Kookmin University have signed a memorandum of understanding on December 14, 2022 to strengthen ties between two universities and explore cooperative relations in the fields of mutual interest. Prof. Nikil Dutt from UCI, Profs. Sung-Soo Lim, Minsuk Lee and Hyukman Kim from Kookmin University and Said Shokair from Grepp, inc. were presented during the signing ceremony.

This international collaboration will lay the foundation for developing joint academic activities which includes exchanges of faculty, researchers and students, joint fundamental research projects and publications, joint educational programs, conferences and workshops.

This summer, Kookmin University will be sending students to UCI to conduct the collaborative research on Global Research Experience in Artificial InTelligence (GREAT). CECS faculty affiliated, Prof. Nikil Dutt will serve as PI and faculty director for the GREAT Project.

We look forward to the continued success of the on-going collaboration with Kookmin University.

Zhou Li Received Amazon Research Award

Amazon awarded CECS affiliated assistant professor of electrical engineering and computer science Zhou Li with monetary award and research tools for his project proposal “Accurate, scalable and robust attack provenance on discrete temporal graph.” In this project, Li and his team will create new advanced graph-learning models to achieve increased classification accuracy on large-scale log data against advanced attackers and hackers.

Zhou Li is one of the 29 recipients of Amazon Research Awards who represented UCI among the 25 universities. The award includes $80,000 in cash, $20,000 in Amazon Web Services (AWS) Promotional Credits, and access to more than 300 Amazon public datasets and AWS AI/ML services and tools.

Congratulations to Prof. Li for the award!

WiCyS 2023 2nd Best Paper Award—“Attack and Fault Detection in the Internet of Things using Graph Neural Networks.”

Research paper “Attack and Fault Detection in the Internet of Things using Graph Neural Networks” by CECS Ph.D. student Rozhin Yasaei (right), received the 2nd Best Paper Award in Women in Cyber Security Conference 2023 (WiCyS ‘23). Rozhin is working under the supervision of Prof. Mohammad Al Faruque in Cyber-Physical Systems Lab.

ICCPS 2023 Accepted Paper—"EnergyShield: Provably-Safe Offloading of Neural Network Controllers for Energy Efficiency"

Research paper "EnergyShield: Provably-Safe Offloading of Neural Network Controllers for Energy Efficiency" by CECS Ph.D. student Mohanad Odema (right), has been accepted to the ACM/IEEE International Conference on Cyber-Physical Systems 2023 (ICCPS'23) . Mohanad is working under the supervision of Prof. Mohammad Al Faruque in the Cyber-Physical Systems Lab.

HOST 2023 Accepted Paper—" MagHop: Magnetic Spectrum Hopping for Securing Voltage and Current Magnetic Sensors"

Research paper " MagHop: Magnetic Spectrum Hopping for Securing Voltage and Current Magnetic Sensors" by CECS Ph.D student Anomadarshi Barua (left), has been accepted to IEEE International Symposium on Hardware Oriented Security and Trust 2023 (HOST'23). Anomadarshi is working under the supervision of Prof. Mohammad Al Faruque in the Cyber-Physical Systems Lab.

Michel Kinsy - "Self-Aware Polymorphic Architecture (SAPA) Systems"

Title: Self-Aware Polymorphic Architecture (SAPA) Systems

Speaker: Prof. Michel Kinsy

Date and Time: Thursday, January 19, 11:a.m.

Location: EH 2430

Hosted By: Prof. Fadi Kurdahi

Eric Feron - "Complex Systems Engineering Theory is a Scientific Theory"

Title: Complex Systems Engineering Theory is a Scientific Theory

Speaker: Prof. Eric Feron

Date and Time: Thursday, January 26, 2:00 p.m.

Location: EH 2430

Hosted By: Prof. Fadi Kurdahi

Marilyn Wolf - "Perception and Computational Efficiency for Autonomous Vehicles"

Title: Perception and Computational Efficiency for Autonomous Vehicles

Speaker: Prof. Marilyn Wolf

Date and Time: Monday, March 6, 2:00 p.m.

Location: EH 2430

Hosted By: Prof. Mohammad Al Faruque

Visitor Profile

Visitor Profile: Jaewoo Park and Minsang Yu

Jaewoo Park (left) and Minsang Yu (right) are visiting students from the Ulsan National Institute of Science and Technology (UNIST) in Ulsan, South Korea. Jaewoo Park is an undergraduate sophomore student, and Minsang Yu is a master student studying in Electrical Engineering and research on AI accelerator.

Yu and Park's current advisor is professor Jongeun Lee, who had been collaborating with UCI for a long period of time. His previous work include novel quantization techniques for deep neural networks and DNN accelerators for extremely low resources. Yu and Park's current research interests include processing-in-memory and reconfigurable architectures.

Mingsang Yu and Jaewoo Park's visit is hosted by Prof. Fadi Kurdahi. They are currently working with professor Kurdahi's group to fabricate a ReRAM based DNN accelerator in order to firstly demonstrate online training of DNN models on a ReRAM based accelerator. During his work, Park thanks professor HyoukJun Kwon for being very helpful in architecting the digital part of the accelerator. Yu and Park hope that the design of the chip will be completed during their stay and to continue the collaboration between UCI and UNIST after the visit.

Publications

The following papers were published by CECS affiliates from January 2023 through March 2023 (and unreported papers from previous eNews).

Author, Title, Publication **Conference Proceedings**

Mahbod Afarin, Chao Gao, Shafiur Rahman, Nael B. Abu-Ghazaleh, Rajiv Gupta: **CommonGraph: Graph Analytics on Evolving Data.** ASPLOS (2) 2023: 133-145, March 25-29, 2023, Vancouver, Canada

Margarita Geleta, Jiacen Xu, Manikanta Loya, Junlin Wang, Sameer Singh, Zhou Li, Sergio Gago Masagué: **Design Factors of Maestro: A Serious Game for Robust AI Education.** SIGCSE (2) 2023: 1318, March 15-18, 2023, Toronto, Canada

Peter Brusilovsky, Barbara J. Ericson, Cay S. Horstmann, Christian Servin, Frank Vahid, Craig B. Zilles: **Significant Trends in CS Educational Material: Current and Future.** SIGCSE (2) 2023: 1253, March 15-18, 2023, Toronto, Canada

Chelsea Gordon, Stanley Zhao, Frank Vahid: **Ultra-Lightweight Early Prediction of At-Risk Students in CS1**. SIGCSE (1) 2023: 764-770, March 15-18, 2023, Toronto, Canada

Frank Vahid, Kelly Downey, Ashley Pang, Chelsea Gordon: Impact **of Several Low-Effort Cheating-Reduction Methods in a CS1 Class.** SIGCSE (1) 2023: 486-492, March 15-18, 2023, Toronto, Canada

Frank Vahid, Kelly Downey, Lizbeth Areizaga, Ashley Pang: **Experiences Teaching Coral Before C++ in CS1**. SIGCSE (1) 2023: 340-345, March 15-18, 2023, Toronto, Canada

Xiang Li, Baojun Liu, Xuesong Bai, Mingming Zhang, Qifan Zhang, Zhou Li, Haixin Duan, Qi Li: **Ghost Domain Reloaded: Vulnerable Links in Domain Name Delegation and Revocation.** NDSS 2023, February 27 - March 3, 2023, San Diego, CA, USA

Scott Jordan, Yoshimichi Nakatsuka, Ercan Ozturk, Andrew Paverd, Gene Tsudik**: VICEROY: GDPR-/CCPA-compliant Enforcement of Verifiable Accountless Consumer Requests.** NDSS 2023, February 27 - March 3, 2023, San Diego, CA, USA

Chongzhou Fang, Najmeh Nazari, Behnam Omidi, Han Wang, Aditya Puri, Manish Arora, Setareh Rafatirad, Houman Homayoun, Khaled N. Khasawneh: **HeteroScore: Evaluating and Mitigating Cloud Security Threats Brought by Heterogeneity**. NDSS 2023, February 27 - March 3, 2023, San Diego, CA, USA

Jie Wu, Ian G. Harris, Hongzhi Zhao, Guangming Ling: **A Graph-to-Sequence Model for Joint Intent Detection and Slot Filling.** ICSC 2023: 131-138, February 1-3, Laguna Hills, CA, USA

Anas Alsoliman, Forough Shirin Abkenar, Marco Levorato: **State-Recovery Protocol for URLLC Applications in 5G Systems**. WiSNeT 2023: 20-23, January 22-25, 2023, Las Vegas, NV, USA

Hussam Amrouch, Paul R. Genssler, Mohsen Imani, Mariam Issa, Xun Jiao, Wegdan Mohammad, Gloria Sepanta, Ruixuan Wang: **Beyond von Neumann Era: Brain-Inspired Hyperdimensional Computing to the Rescue.** ASP-DAC 2023: 553-560, January 16-19, 2023, Tokyo, Japan

Nitish Nagesh, Iman Azimi, Tom Andriola, Amir M. Rahmani, Ramesh C. Jain: **Towards Deep Personal Lifestyle Models Using Multimodal N-of-1 Data.** MMM (1) 2023: 589-600, January 9-12, 2023, Bergen, Norway

Publications

The following papers were published by CECS affiliates from January 2023 through March 2023 (and unreported papers from previous eNews).

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Asmaa Abdallah, Abdulkadir Celik, Mohammad M. Mansour, Ahmed M. Eltawil: **Deep Reinforcement Learning Based Beamforming Codebook Design for RIS-aided mmWave Systems.** CCNC 2023: 1020-1026, January 8-11, 2023, Las Vegas, NV, USA

Yuvaraj Rajendra, Venkatesan Subramanian, Sandeep Kumar Shukla: **BlockPaaS: Blockchain Platform as a Service**. COMSNETS 2023: 204-206, January 3-8, 2023, Bangalore, India

Achim Rettberg, Gregor Engels, Tim Schattkowsky: **Introduction to the Minitrack on Digital Twins: Platforms, Methods, Applications, and Impact**. HICSS 2023: 6746-6747, January 3-6, 2023, Maui, HI, USA

Journal Articles

Christoph Jansen, Björn Lindequist, Klaus Strohmenger, Daniel Romberg, Tobias Küster, Nick Weiss, Michael Franz, Lars Ole Schwen, Theodore Evans, André Homeyer, Norman Zerbe: **The vendor-agnostic EMPAIA platform for integrating AI applications into digital pathology infrastructures.** Future Gener. Comput. Syst. 140: 209-224, March, 2023

Xiaofan Yu, Kazim Ergun, Xueyang Song, Ludmila Cherkasova, Tajana Simunic Rosing: **Automating and Optimizing Reliability-Driven Deployment in Energy-Harvesting IoT Networks**. IEEE Trans. Netw. Serv. Manag. 20(1): 787-799, March, 2023

Ninad Hogade, Sudeep Pasricha: **A Survey on Machine Learning for Geo-Distributed Cloud Data Center Managements**. IEEE Trans. Sustain. Comput. 8(1): 15-31, March, 2023

Mingxuan Liu, Zihan Zhang, Yiming Zhang, Chao Zhang, Zhou Li, Qi Li, Haixin Duan, Donghong Sun: **Automatic Generation of Adversarial Readable Chinese Texts. IEEE Trans. Dependable Secur.** Comput. 20(2): 1756-1770, March, 2023

Pratibha Choudhary, Michael T. Goodrich, Siddharth Gupta, Hadi Khodabandeh, Pedro Matias, Venkatesh Raman: **Improved kernels for tracking paths**. Inf. Process. Lett. 181: 106360, March, 2023

Kazim Ergun, Raid Ayoub, Pietro Mercati, Tajana Simunic Rosing: **Dynamic Reliability Management of Multigateway IoT Edge Computing Systems**. IEEE Internet Things J. 10(5): 3864-3889, March, 2023

Yogesh Patel, Sudeep Tanwar, Pronaya Bhattacharya, Rajesh Gupta, Turki Alsuwian, Innocent Ewean Davidson, Thokozile F. Mazibuko: **An Improved Dense CNN Architecture for Deepfake Image Detection.** IEEE Access 11: 22081-22095, March, 2023

Sugil Lee, Mohammed E. Fouda, Jongeun Lee, Ahmed M. Eltawil, Fadi J. Kurdahi: **Offline Training-Based Mitigation of IR Drop for ReRAM-Based Deep Neural Network Accelerators.** IEEE Trans. Comput. Aided Des. Integr. Circuits Syst. 42(2): 521-532, February, 2023

Abeer Alamoudi, Abdulkadir Celik, Ahmed M. Eltawil: **Cooperative Body Channel Communications for Energy-Efficient Internet of Bodies.** IEEE Internet Things J. 10(4): 3468-3483, February, 2023

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Abdulkadir Celik, Imene Romdhane, Georges Kaddoum, Ahmed M. Eltawil**: A Top-Down Survey on Optical Wireless Communications for the Internet of Things.** IEEE Commun. Surv. Tutorials 25(1): 1-45, February, 2023

Md Hedayatullah Maktoomi, Soheil Saadat, Omeed Momeni, Payam Heydari, Hamidreza Aghasi: **Broadband Antenna Design for Terahertz Communication Systems.** IEEE Access 11: 20897-20911, February, 2023

Rajesh Gupta, Nilesh Kumar Jadav, Harsh Mankodiya, Mohammad Dahman Alshehri, Sudeep Tanwar, Ravi Sharma: **Blockchain and Onion-Routing-Based Secure Message Exchange System for Edge-Enabled IIoT.** IEEE Trans. Ind. Informatics 19(2): 1965-1976, February, 2023

Rang Liu, Ming Li, Honghao Luo, Qian Liu, A. Lee Swindlehurst: **Integrated Sensing and Communication with Reconfigurable Intelligent Surfaces: Opportunities, Applications, and Future Directions**. IEEE Wirel. Commun. 30(1): 50-57, February, 2023

Ly V. Nguyen, Nhan T. Nguyen, Nghi H. Tran, Markku J. Juntti, A. Lee Swindlehurst, Duy H. N. Nguyen: **Leveraging Deep Neural Networks for Massive MIMO Data Detection.** IEEE Wirel. Commun. 30(1): 174-180, February, 2023
Hoda Naghibijouybari, Esmaeil Mohammadian Koruyeh, Nael B. Abu-Ghazaleh: **Microarchitectural Attacks in Heterogeneous Systems: A Survey.** ACM Comput. Surv. 55(7): 142:1-142:40, January, 2023

Mohd. Tasleem Khan, Hasan Erdem Yantir, Khaled Nabil Salama, Ahmed M. Eltawil: **Architectural Trade-Off Analysis for Accelerating LSTM Network Using Radix-r OBC Scheme.** IEEE Trans. Circuits Syst. I Regul. Pap. 70(1): 266-279, January, 2023

Jeffrey L. Krichmar, Chuanxiuyue He: **Importance of Path Planning Variability: A Simulation Study.** Top. Cogn. Sci. 15 (1): 139-162, January, 2023

Raj Parekh, Nisarg P. Patel, Rajesh Gupta, Nilesh Kumar Jadav, Sudeep Tanwar, Abdullah Alharbi, Amr Tolba, Bogdan Constantin Neagu, Maria Simona Raboaca: **GeFL: Gradient Encryption-Aided Privacy Preserved Federated Learning for Autonomous Vehicles.** IEEE Access 11: 1825-1839, January, 2023

Chunyan Diao, Dafang Zhang, Wei Liang, Kuan-Ching Li, Yujie Hong, Jean-Luc Gaudiot: **A Novel Spatial-Temporal Multi-Scale Alignment Graph Neural Network Security Model for Vehicles Prediction**. IEEE Trans. Intell. Transp. Syst. 24(1): 904-914, January, 2023

Wei Xu, Derrick Wing Kwan Ng, Marco Levorato, Yonina C. Eldar, Mérouane Debbah: **Guest Editorial Distributed Signal Processing for Edge Learning in B5G IoT Networks.** IEEE J. Sel. Top. Signal Process. 17(1): 3-8, January, 2023

Yoshitomo Matsubara, Marco Levorato, Francesco Restuccia: **Split Computing and Early Exiting for Deep Learning Applications: Survey and Research Challenges.** ACM Comput. Surv. 55(5): 90:1-90:30, January, 2023

Wei Xu, Zhaohui Yang, Derrick Wing Kwan Ng, Marco Levorato, Yonina C. Eldar, Mérouane Debbah: **Edge Learning for B5G Networks With Distributed Signal Processing: Semantic Communication, Edge Computing, and Wireless Sensing.** IEEE J. Sel. Top. Signal Process. 17(1): 9-39, January, 2023

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Xiaoliang Wang, Guangsheng Zhou, Xiaomin Lv, Zhou Li, Mingcheng Hu, Xiaohui He, Zhihui Tian: **Comparison of Lake Extraction and Classification Methods for the Tibetan Plateau Based on Topographic-Spectral Information**. Remote. Sens. 15(1): 267, January, 2023

Mingcheng Hu, Guangsheng Zhou, Xiaomin Lv, Zhou Li, Xiaoliang Wang, Xiaohui He, Zhihui Tian: **Warming Has Accelerated the Melting of Glaciers on the Tibetan Plateau, but the Debris-Covered Glaciers Are Rapidly Expanding.** Remote. Sens. 15(1): 132, January, 2023

Zixiao Zong, Mengwei Yang, Justin Ley, Athina Markopoulou, Carter T. Butts: **Privacy by Projection: Federated Population Density Estimation by Projecting on Random Features.** Proc. Priv. Enhancing Technol. 2023(1): 309-324, January, 2023

Amin Shafiee, Sudeep Pasricha, Mahdi Nikdast: **A Survey on Optical Phase-Change Memory: The Promise and Challenges**. IEEE Access 11: 11781-11803, January, 2023

Alireza Amirshahi, Anthony Hitchcock Thomas, Amir Aminifar, Tajana Rosing, David Atienza: **M2D2: Maximum-Mean-Discrepancy Decoder for Temporal Localization of Epileptic Brain Activities.** IEEE J. Biomed. Health Informatics 27(1): 202-214, January, 2023

James Ferlez, Yasser Shoukry: **Polynomial-Time Reachability for LTI Systems With Two-Level Lattice Neural Network Controllers.** IEEE Control. Syst. Lett. 7: 1105-1110, January, 2023

Bowen Tang, Chenggang Wu, Zhe Wang, Lichen Jia, Pen-Chung Yew, Yueqiang Cheng, Yinqian Zhang, Chenxi Wang, Guoqing Harry Xu: S**pecBox: A Label-Based Transparent Speculation Scheme Against Transient Execution Attacks.** IEEE Trans. Dependable Secur. Comput. 20(1): 827-840, January, 2023

Ly V. Nguyen, Duy H. N. Nguyen, A. Lee Swindlehurst: **Deep Learning for Estimation and Pilot Signal Design in Few-Bit Massive MIMO Systems.** IEEE Trans. Wirel. Commun. 22(1): 379-392, January, 2023

Other Publications

Nathan Leroux, Jan Finkbeiner, Emre Neftci: **Online Transformers with Spiking Neurons for Fast Prosthetic Hand Control.** CoRR abs/2303.11860, March, 2023

Sirui Qi, Yingheng Li, Sudeep Pasricha, Ryan Gary Kim: **MOELA: A Multi-Objective Evolutionary/Learning Design Space Exploration Framework for 3D Heterogeneous Manycore Platforms.** CoRR abs/2303.06169, March, 2023

Lotfi Abdelkrim Mecharbat, Hadjer Benmeziane, Hamza Ouranoughi, Smaïl Niar: **HyT-NAS: Hybrid Transformers Neural Architecture Search for Edge Devices.** CoRR abs/2303.04440, March, 2023

Marco A. Wehrmeister, Márcio Eduardo Kreutz, Marcelo Götz, Stefan Henkler, Andy D. Pimentel, Achim Rettberg: **Analysis, Estimations, and Applications of Embedded Systems - 6th IFIP TC 10 International Embedded Systems Symposium, IESS 2019, Friedrichshafen, Germany, September 9-11, 2019, Revised Selected Papers.** IFIP Advances in Information and Communication Technology 576, Springer 2023, ISBN 978-3-031-26499-3 [contents], March, 2023

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Mojtaba Taherisadr, Stelios Andrew Stavroulakis, Salma Elmalaki: **adaPARL: Adaptive Privacy-Aware Reinforcement Learning for Sequential-Decision Making Human-in-the-Loop Systems.** CoRR abs/2303.04257, March, 2023

Christian Westbrook, Sudeep Pasricha: **Adversarial Attacks on Machine Learning in Embedded and IoT Platforms**. CoRR abs/2303.02214, March, 2023

Takami Sato, Yuki Hayakawa, Ryo Suzuki, Yohsuke Shiiki, Kentaro Yoshioka, Qi Alfred Chen: **Revisiting LiDAR Spoofing Attack Capabilities against Object Detection: Improvements, Measurement, and New Attack.** CoRR abs/2303.10555, March, 2023

Ruochen Jiao, Juyang Bai, Xiangguo Liu, Takami Sato, Xiaowei Yuan, Qi Alfred Chen, Qi Zhu: **Learning Representation for Anomaly Detection of Vehicle Trajectories**. CoRR abs/2303.05000, March, 2023

Shima Nabiee, Nader Bagherzadeh: **Stock Trend Prediction: A Semantic Segmentation Approach.** CoRR abs/2303.09323, March, 2023

Mojtaba Taherisadr, Mohammad Abdullah Al Faruque, Salma Elmalaki: **ERUDITE: Human-in-the-Loop IoT for an Adaptive Personalized Learning System.** CoRR abs/2303.04292, March, 2023

Abhishek Balasubramaniam, Febin P. Sunny, Sudeep Pasricha: **R-TOSS: A Framework for Real-Time Object Detection using Semi-Structured Pruning.** CoRR abs/2303.02191, March, 2023

Jingyao Zhang, Mohsen Imani, Elaheh Sadredini: **BP-NTT: Fast and Compact in-SRAM Number Theoretic Transform with Bit-Parallel Modular Multiplication.** CoRR abs/2303.00173, March, 2023

Halima Bouzidi, Mohanad Odema, Hamza Ouarnoughi, Smaïl Niar, Mohammad Abdullah Al Faruque: **Map-and-Conquer: Energy-Efficient Mapping of Dynamic Neural Nets onto Heterogeneous MPSoCs.** CoRR abs/2302.12926, February, 2023

Mohanad Odema, James Ferlez, Yasser Shoukry, Mohammad Abdullah Al Faruque: **SEO: Safety-Aware Energy Optimization Framework for Multi-Sensor Neural Controllers at the Edge.** CoRR abs/2302.12493, February, 2023

Danish Gufran, Saideep Tiku, Sudeep Pasricha: **VITAL: Vision Transformer Neural Networks for Accurate Smartphone Heterogeneity Resilient Indoor Localization.** CoRR abs/2302.09443, February, 2023

Mohanad Odema, James Ferlez, Goli Vaisi, Yasser Shoukry, Mohammad Abdullah Al Faruque: **EnergyShield: Provably-Safe Offloading of Neural Network Controllers for Energy Efficiency.** CoRR abs/2302.06572, February, 2023

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Fangzhou Wang, A. Lee Swindlehurst: **Applications of Absorptive Reconfigurable Intelligent Surfaces in Interference Mitigation and Physical Layer Security.** CoRR abs/2302.01508, February, 2023

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Qi Huang, Baha Eddine Youcef Belmekki, Ahmed M. Eltawil, Mohamed-Slim Alouini: **System-Level Metrics for Non-Terrestrial Networks Under Stochastic Geometry Framework.** CoRR abs/2302.03376, February, 2023

Shih-Yuan Yu, Yonatan Gizachew Achamyeleh, Chonghan Wang, Anton Kocheturov, Patrick Eisen, Mohammad Abdullah Al Faruque: **CFG2VEC: Hierarchical Graph Neural Network for Cross-Architectural Software Reverse Engineering.** CoRR abs/2301.02723, January, 2023

Azadeh Tabeshnezhad, A. Lee Swindlehurst, Tommy Svensson: **RIS-Assisted Interference Mitigation for Uplink NOMA**. CoRR abs/2301.13841, January, 2023

Dan Yang, Jindan Xu, Wei Xu, Ning Wang, Bin Sheng, A. Lee Swindlehurst: **Secure Communication for Spatially Correlated Massive MIMO with Low-Resolution DACs**. CoRR abs/2301.03775, January, 2023

Ly V. Nguyen, Hien Quoc Ngo, Le-Nam Tran, A. Lee Swindlehurst, Duy H. N. Nguyen: **Variational Bayes Inference for Data Detection in Cell-Free Massive MIMO.** CoRR abs/2301.04260, January, 2023

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Kun Wu, Mert Hidayetoglu, Xiang Song, Sitao Huang, Da Zheng, Israt Nisa, Wen-Mei W. Hwu: **PIGEON: Optimizing CUDA Code Generator for End-to-End Training and Inference of Relational Graph Neural Networks.** CoRR abs/2301.06284, January, 2023

Jiayun Zhang, Xiyuan Zhang, Xinyang Zhang, Dezhi Hong, Rajesh K. Gupta, Jingbo Shang: **Federated Learning with Client-Exclusive Classes.** CoRR abs/2301.00489, January, 2023

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Onat Güngör, Tajana Rosing, Baris Aksanli: **DODEM: DOuble DEfense Mechanism Against Adversarial Attacks Towards Secure Industrial Internet of Things Analytics.** CoRR abs/2301.09740, January, 2023

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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.

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