

PARITOSH P. RAMANAN

CONTACT INFORMATION	354 Engineering North, School of Industrial Engineering and Management, Oklahoma State University, Stillwater, OK	+1 (404) 980 8841 paritosh.ramanan@okstate.edu paritoshpr.github.io
RESEARCH INTERESTS	<i>Methodology:</i> Federated Machine Learning, Decentralized Analytics and Optimization, Parallel and Distributed Computing, Data Privacy and Security, Large Scale Mixed-Integer Optimization <i>Applications:</i> Cyber Physical Systems, Power Systems, High Performance Computing, Cloud and Edge Computing, Blockchain Based Decentralized Applications (dApps)	
EDUCATION	Georgia Institute of Technology , Atlanta, GA Ph.D., Computational Science and Engineering, Minor in Operations Research December 2020 <ul style="list-style-type: none">• Thesis Title: <i>Decentralized Optimization and Analytics for Large Scale Power System Problems</i>• Advisors: Nagi Z. Gebraeel and Edmond Chow Georgia State University , Atlanta, GA M.S., Computer Science August 2015 <ul style="list-style-type: none">• Thesis Title: <i>INDIGO: An In-Situ Distributed Gossip System Design and Evaluation</i>• Advisor: WenZhan Song Birla Institute of Technology and Science-Pilani, Goa Campus , Goa, India M.Sc(Tech), Information Systems August 2013	
PROFESSIONAL EXPERIENCE	<ul style="list-style-type: none">• <u>Assistant Professor</u>, August 2022 - Present School of Industrial Engineering and Management, Oklahoma State University, Stillwater, OK• <u>NASA HOME Postdoctoral Fellow</u>, October 2020 - July 2022 School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, GA• <u>Co-Founder</u>, August 2020 - Present Blockalytics LLC, Atlanta, GA• <u>Graduate Research Intern</u>, May 2019 - August 2019 Energy Management Division, NEC Laboratories of America, San Jose, CA• <u>Graduate Research Intern</u>, May 2017 - August 2017 Computer Science Research Institute, Sandia National Labs, Albuquerque, NM	
PREPRINTS/ SUBMITTED WORKS	[1] <u>Ramanan P.</u> , Yildirim M., Gebraeel N. and Chow E. “Decentralized and Secure Generation Maintenance with Differential Privacy”, arXiv preprint arXiv:2010.09099, submitted to <i>IEEE Transactions on Control of Network Systems</i>	
JOURNAL PUBLICATIONS	[1] <u>Ramanan P.</u> , Li D. and Gebraeel N. “Decentralized Blockchain based Replay Attack Detection for Power Systems”, arXiv preprint arXiv:2010.09086, accepted to <i>IEEE Transactions on Systems, Man and Cybernetics: Systems</i> , (Acceptance Ratio: 0.1, Impact Factor: 13.45) [2] <u>Ramanan P.</u> , Yildirim M., Gebraeel N. and Chow E. “Large-Scale Maintenance and Unit Commitment: A Decentralized Subgradient Approach”, accepted to <i>IEEE Transactions on Power Systems</i> , (Impact Factor: 6.663), May 2021 [3] <u>Ramanan P.</u> , Yildirim M., Chow E., and Gebraeel N. “An Asynchronous, Decentralized Solution Framework for the Large Scale Unit Commitment Problem” <i>IEEE Transactions on Power Systems</i> , (Impact Factor: 6.663), 34 (5), 3677-3686, September 2019	

- [4] Ramanan, P., Kamath G. and Song WZ. “INDIGO: An In Situ Distributed Gossip Framework for Sensor Networks.” *International Journal of Distributed Sensor Networks*, 11(10), 76-83, October 2015
- CONFERENCE PUBLICATIONS
- [1] Li D., Ramanan P., Gebraeel N., Paynabar K. “Deep Learning based Covert Attack Identification for Industrial Control Systems” *IEEE ICMLA 2020*, Miami, Florida, December 2020
- [2] Ramanan P., Nakayama K. “BAFFLE : Blockchain based Aggregator Free Federated Learning” *IEEE Blockchain 2020*, Rhodes Island, Greece, November 2020 (Acceptance Ratio: 0.16)
- [3] Glusa C., Boman EG., Chow E., Rajamanickam S. and Ramanan P., “Asynchronous One-Level and Two-Level Domain Decomposition Solvers,” *Domain Decomposition Methods in Science and Engineering XXV (Domain Decomposition 2018)*, St. John’s, Newfoundland, Canada, July 2018
- [4] Ramanan P., Yildirim M., Chow E., and Gebraeel N. “Asynchronous Decentralized Framework for Unit Commitment in Power Systems” *International Conference on Computational Science (ICCS 2017)*, Zurich, Switzerland, June 2017 (Acceptance Ratio: 0.25)
- [5] Kamath G., Ramanan P. and Song WZ. “Distributed Randomized Kaczmarz and Applications to Seismic Imaging in Sensor Network” *IEEE International Conference on Distributed Computing in Sensor Systems (IEEE DCOSS)* Fortaleza, Brazil, May 2015
- [6] Ramanan P., Kamath G. and Song WZ. “NetTomo: A Tomographic Approach towards Network Diagnosis” *IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (IEEE WoWMoM)* Boston, MA, June 2015 (Acceptance Ratio: 0.21)
- [7] Kamath G., Song WZ., P. Ramanan, Shi L. and Yang J., “DRISTI: Distributed Real-Time In-Situ Seismic Tomographic Imaging” *IEEE International Conference on Ubiquitous Computing and Communication (IEEE IUCC)* Liverpool, UK, October 2015
- [8] Ramanan P., Gaikwad P., and Vidyadharan S. “Achieving connectivity in an Unstructured Wireless Sensor Network using Optimal Assignment of Mobile Nodes” *International Conference on Networking (ICN)* 2013, Seville, Spain, January 2013
- BOOK CHAPTERS
- Ramanan P., “Conflict Reduction and Deterrence in the Power Grid of the Future: A Cyber Security Perspective”, *Emerging Technologies and Future of Conflict Deterrence: Governance, Development, Diplomacy, and Armed Conflict*, under review at Routledge Press.
- PATENTS
- Ramanan P., Nagi Gebraeel “BLOCKCHAIN-BASED DECENTRALIZED COMPUTING”, USPTO Application Number 17372064, July 2021.
- HONORS AND AWARDS
- Winner of the Institute of Information Security and Privacy (IISP) Demo Day 2020 Commercialization Track for Blockalytics.
 - Judged as the most innovative solution for ensuring privacy and reducing computational cost for Industrial IoT analytics.
 - Awarded a cash prize of \$5000.
 - Co-founder of **blockalytics.io**, selected for CREATE-X startup competition with a \$34,000 seed award
 - The CREATE-X program is highly competitive with acceptance rates historically being around 14% with 350 competing teams comprising of 1000 participating students.
 - Blockalytics was inspired by national security loopholes in the power grid discovered during research conducted during the Sam Nunn Fellowship Program
 - Recipient of the Sam Nunn Security Program (SNSP) Fellowship 2018-2019
 - Delivered an invited talk on cyber security deterrence for the U.S. power grid at the Special Operations Command Centre (SOCOM) of the United States Department of Defense in Tampa FL in May 2019.
 - Delivered briefings on technical aspects of multi-modal cyber security threats faced by the US power grid system to:
 - Fmr. Deputy Secretary of Energy, Dr. Elizabeth Sherwood-Randall

- Fmr. Vice Chairman of the Joint Chiefs of Staff, Retd. Admiral James Alexander Winnefeld Jr.
- Fmr. Supreme Allied Commander Europe (SACEUR) of NATO Allied Command Operations, Retd. General Philip Mark Breedlove

- PRESENTATIONS
- Vertical Federated Learning for Anomaly Detection in Multi Component Cyber Physical Systems, INFORMS Annual Meeting 2021, October 24-27, Anaheim, CA
 - Blockchain based Decentralized Global Cyber Attack Detection for Power Systems, INFORMS Annual Meeting 2020, online
 - Blockchain based Cyber Analytics for Large Scale Power Systems, IISE 2020 Annual Meeting, online
 - Decentralized Multithreaded Maintenance For Large Scale Power Systems, INFORMS Annual Meeting 2019, October 20-23, Seattle, WA
 - Decentralized Asynchronous Framework for Large Scale Power System Planning Problems, IISE 2019 Annual Meeting, May 19-21, Orlando, FL
 - Asynchronous Decentralized Framework for Unit Commitment in Power Systems, SIAM CSE 2019, February 25-Mar 1, Spokane, WA
 - Asynchronous Large-scale Decentralized Unit Commitment, INFORMS Annual Meeting 2018, November 4-7, Phoenix, AZ
 - ACHILES: An Asynchronous Iterative Linear Solver, SIAM Parallel Processing 2018, March 7-10, 2018, Tokyo, Japan
 - Scalable static deployment pattern for WSNs, ICICIC 2012, December 2012, Chennai, India

- SERVICE
- Session Chair: Addressing Computation and Market Integration Challenges in Power Systems, INFORMS Annual Meeting 2019.
 - Reviewer: IEEE Transactions on Power Systems, IEEE Transactions on Automation Science and Engineering, IEEE Transactions on Systems, Man and Cybernetics: Systems, IEEE Transactions on Industrial Informatics, IEEE Wireless Communications Magazine, Information Processing and Management, Computational Optimization and Applications, AAAI Conference on Artificial Intelligence (Workshop on Privacy Preserving AI) 2020, 2021 (AAAI 2020 & 2021), 2nd Workshop on Secure IoT, Edge and Cloud systems (SIoTEC) 2021

- TEACHING EXPERIENCE
- Teaching Assistant:
- IEM 5003: Probability and Statistics (Fall 2022), Oklahoma State University
 - ISyE3770: Statistics and Applications (Fall 2015), Georgia Tech
 - CS C313/IS C313 : Object Oriented Programming and Design (Fall 2012), BITS-Pilani, Goa

REFERENCES

Nagi Z. Gebraeel
 Georgia Power Professor
 School of Industrial and Systems Engineering
 Georgia Institute of Technology
nagi.gebraeel@isye.gatech.edu

Edmond Chow
 Associate Professor
 School of Computational Science Engineering
 Georgia Institute of Technology
echow@cc.gatech.edu

Santanu Dey

A. Russell Chandler III Professor
School of Industrial and Systems Engineering
Georgia Institute of Technology

santanu.dey@isye.gatech.edu

Andy Sun

David M. McKenney Family Associate Professor
School of Industrial and Systems Engineering
Georgia Institute of Technology

andy.sun@isye.gatech.edu