Ahmad F. Taha

Curriculum Vitae

March 2026

Department of Civil & Environmental Engineering
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Objectives and Research Interests

My career objective is to lead discoveries toward fundamental advances in infrastructure engineering by addressing research challenges, fostering innovation, and educating the next generation of engineers. I aim to be at the frontier of dynamic, urban infrastructure and cyber-physical systems (CPS) sciences, with applications in energy, water, and transportation systems.

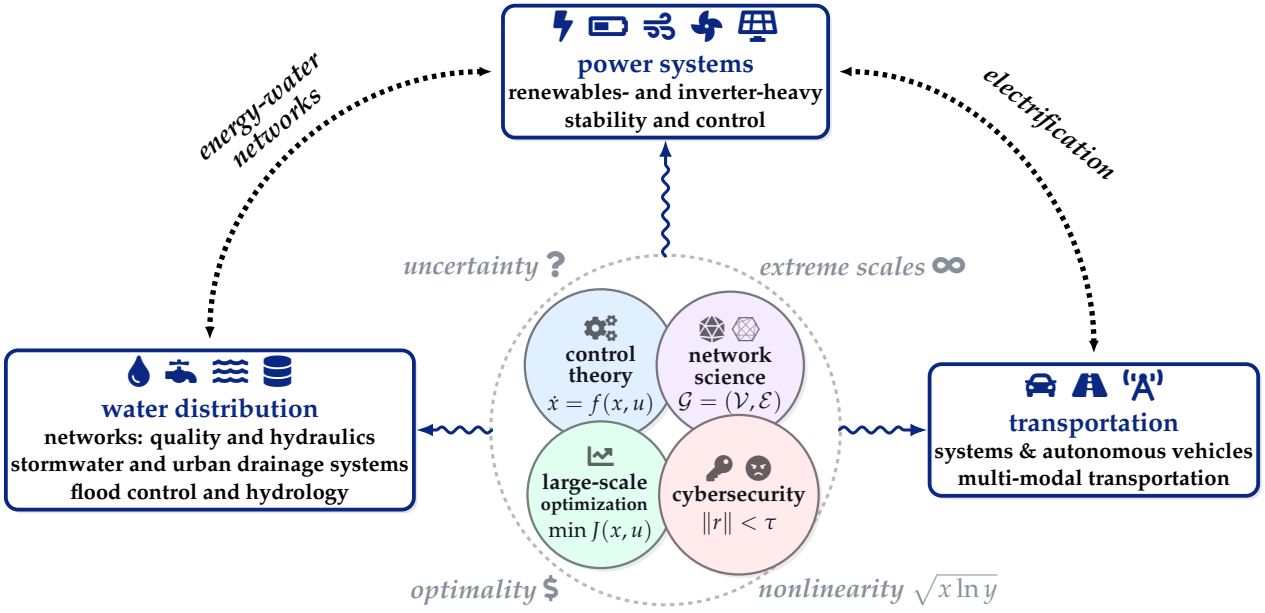

Figure 1: The focus of my group: control, optimization, and network science to solve multi-infrastructure problems while addressing challenges related to scale, nonlinearity, and uncertainty.

Current research and teaching interests:

- ➤ Dynamic infrastructure networks and cyber-physical systems (CPS) sciences
- ➤ Sustainable, renewables-based power systems control and operation
- ➤ Water distribution networks control and optimization
- ➤ Stormwater systems and flood control problems
- ➤ Mobility and transportation systems: real-time monitoring and traffic control
- ➤ Cyber-security of power grids and water systems

Educational Background

Purdue University, West Lafayette, IN

Ph.D. in Electrical and Computer Engineering, **August 2015**

- *Thesis Title:* Secure Estimation, Optimization & Control of Cyber-Physical Systems with Applications to Power Networks
- *Advisers:* Professors Jitesh H. Panchal and Oleg Wasynczuk

American University of Beirut, Lebanon

B.E. in Electrical and Computer Engineering, **June 2011**

- *Minors:* Mathematical Sciences & Engineering Management
- *Thesis Title:* Sense of Agency Signature Detection in Electroencephalogram (EEG) Signals

Professional Employment History

Vanderbilt University, Nashville, TN

Tenured Associate Professor, **August 2021–Present**

- *Departments:* Civil & Environmental Engineering (Primary); Electrical & Computer Engineering (Secondary)
- *Research Area:* Real-time control, monitoring, and optimization theory with applications to critical infrastructure in smart cities.
- *Teaching Area:* Infrastructure System Analysis, Dynamic Systems Sciences, Engineering Optimization, Numerical Methods for Engineers
- *Lab Status:* Leading a research lab of four PhD students and two postdoctoral fellows with $2.5+ million in current funding.
- *Editorial Roles:* Associate Editor of *IEEE Transactions on Control of Network Systems*; Guest Editor of *Annual Reviews in Control*, *IEEE Open Journal of Control Systems*

The University of Texas at San Antonio, San Antonio, TX

Assistant Professor, **August 2015–August 2021**

- *Department:* Electrical and Computer Engineering
- *Research Area:* Control and optimization theory with applications to critical infrastructure in smart cities.
- *Funding:* Secured ≈$3.3M from 6 NSF grants, 1 DoD grant, and other sources as PI/co-PI.
- *Publications:* Co-authored ≈30 journal publications and 30 conference papers in top-tier venues (2015–2020).
- *Teaching:* Linear Systems Theory, Analysis and Design of Control Systems, Optimization and Control of CPS.

- *Editorial Service:* IEEE Control Systems Society Electronic Publications Chair; Editor for IEEE Transactions on Smart Grid.

Argonne National Lab, Lemont, IL

Visiting Researcher, **Spring 2015**

- *Division:* Center for Energy, Environmental, & Economic Systems Analysis
- *Topic:* Control and Cyber-Security in Smart Grids
- *Collaborators:* Drs. Jianhui Wang, Chen Chen, Junjian Qi

University of Toronto, Toronto, ON

Visiting Researcher, **Summer 2014**

- *Department:* Electrical and Computer Engineering
- *Topic:* Joint Steady State and Transient Operation in Power Systems
- *Adviser:* Dr. Joshua Taylor

Purdue University, West Lafayette, IN

Graduate Research and Teaching Assistant, **2011–2015**

- *Departments:* Electrical and Computer Engineering; Mechanical Engineering
- *Topic:* Analysis and Design of Decentralized Networked Control Systems for CPS with Applications to Energy Systems

Massachusetts Institute of Technology, Cambridge, MA

Summer Research Intern, **Summer 2010**

- *Department:* Electrical Engineering and Computer Science
- *Topic:* Traffic Networks Monitoring and Virtual City Testbed Implementation
- *Advisers:* Dr. Ketan Savla, Dr. Munther Dahleh

Research Grants

The table below provides symbols for the major focus of the grant awards.

Research Area	Control & Network Theory	Water	Energy	Transportation	Security
Symbol					

1. **ARPA-E: IMAGINED: Intermodal Analytics for Global Infrastructure Network Energy Dynamics**  , 

   - *Funding Agency:* Department of Energy, ARPA-E
   - *Total Amount:* $300,000
   - *Role:* Co-PI (30% at Vanderbilt)
   - *Duration:* 7/2025–6/2028

2. **Collaborative Research: CyberTraining: Implementation: Medium: Cross-Disciplinary Training for Joint CPS and IoT Security**  ,  , , 

   - *Funding Agency:* National Science Foundation
   - *Total Amount:* $400,505
   - *Role:* Lead Project PI (100% at Vanderbilt)
   - *Duration:* 1/2023–1/2027

3. **CAREER: Scheduling Driving Sensing and Control Nodes in Nonlinear Networks with Applications to Fuel-Free Energy Systems**  , 

   - *Funding Agency:* National Science Foundation
   - *Total Amount:* $526,527
   - *Role:* Lead Project PI (100% at Vanderbilt)
   - *Duration:* 4/2021–3/2026

4. **Collaborative Research: Joint Control of Hydraulics and Water Quality Dynamics in Drinking Water Networks**  , 

   - *Funding Agency:* National Science Foundation
   - *Total Amount:* $770,000 ($250,000 for UTSA; $260,000 for UIC; $260,000 for UT Austin)
   - *Role:* Lead Project PI (100% at Vanderbilt), with Ahmed Abokifa (PI at UIC) and Lina Sela (PI at UT Austin)
   - *Duration:* 9/2020–8/2023

5. **Collaborative Research: Advancing Robust Control and State Estimation of Converter-Based Power Systems**  , 

   - *Funding Agency:* National Science Foundation
   - *Total Amount:* $525,000 ($265,000 for Vanderbilt; $260,000 for Iowa State)

- *Role:* Lead Project PI (100% at Vanderbilt), with Hugo Villegas Pico (PI at ISU)
- *Duration:* 8/2020–7/2023

6. **Collaborative Research: Optimal Sensor Selection and Robust Traffic Detection and Estimation in a World of Connected Vehicles**

   - *Funding Agency:* National Science Foundation
   - *Total Amount:* $516,000 ($283,000 for UTSA; $233,000 for UT Austin)
   - *Role:* Lead Project PI (50% at UTSA), with Taposh Banerjee (co-PI) and Chris Claudel (PI at UT Austin)
   - *Duration:* 8/2019–7/2022

7. **Collaborative Research: Selecting Sensors and Actuators for Topologically Evolving Networked Dynamical Systems**

   - *Funding Agency:* National Science Foundation
   - *Total Amount:* $450,000
   - *Role:* Lead Project PI (33.33% at UTSA), with N. Gatsis (co-PI), M. Giacomoni (co-PI), and T. Summers (PI at UT Dallas)
   - *Duration:* 8/2017–8/2021

8. **Integrated Framework for Detection and Mitigation of GPS Spoofing Attacks in Smart Grids**

   - *Funding Agency:* National Science Foundation
   - *Total Amount:* $400,000
   - *Role:* Co-PI (33.33% at UTSA), with Nikolaos Gatsis (PI) and David Akopian (co-PI)
   - *Duration:* 8/2017–8/2021

9. **EAGER: Collaborative Research: Empowering Smart Energy Communities: Connecting Buildings, People, and Power Grids**

   - *Funding Agency:* National Science Foundation
   - *Total Amount:* $260,000
   - *Role:* Co-PI, with Bing Dong (PI), Nikolaos Gatsis (co-PI), and Nanpeng Yu (co-PI)
   - *Duration:* 8/2016–8/2018

10. **Acquisition of Real-Time Simulator for Intelligent Power Networks in Operational Energy Applications**

    - *Funding Agency:* Department of Defense
    - *Total Amount:* $280,000
    - *Role:* Co-PI, with Hariharan Krishnaswami (PI) and Nikolaos Gatsis (co-PI)
    - *Duration:* 1/2016–12/2016

11. **Dynamic Cyber-Attack Detection and Mitigation for Secure Smart Grids**

- *Funding Agency:* UTSA Office of the VPR
- *Total Amount:* $30,000
- *Role:* PI, with Nikolaos Gatsis (co-PI) and Bing Dong (co-PI)
- *Duration:* 3/2016–12/2016

12. **Control Systems Education & Outreach to Low-Income High-School Students in San Antonio**

- *Funding Agency:* IEEE and Control Systems Society
- *Total Amount:* $15,000
- *Role:* PI, with Chunjian Qian (co-PI) and Pranav Bhounsule (co-PI)
- *Duration:* 9/2016–2/2017

Publications

Please click here for my Google Scholar profile.

***Note**: All papers in review are available upon request in their most recent, revised versions. Their corresponding round of review is also provided below. I am (or was) privileged to be the doctoral adviser of graduate students Sebastian Nugroho, Shen Wang, Mohammad Nadeem, Salma ElSherif, Mohamad Kazma, Abdallah Albustami, and Jafar Mandouri and the postdoc adviser of MirSaleh Bahavarnia, Wenjie Mei, and Hongchao Zhang. Students' and postdocs' last names are underlined.*

The table below provides symbols for the major focus of the papers.

Research Area	Control & Network Theory	Water	Energy & Power	Transportation	Security
Symbol					

PhD Thesis

1. **Taha**, A. F. (2015). "Secure Estimation, Control and Optimization of Uncertain Cyber-Physical Systems with Applications to Power Networks". PhD thesis. Purdue University, Department of Electrical and Computer Engineering,  .

Peer-Reviewed Journal Articles

1. Kazma, M. and A. F. **Taha** (2026). Observability for Nonlinear Systems: Connecting Variational Dynamics, Lyapunov Exponents, and Empirical Gramians. *IEEE Transactions on Control of Network Systems*. In press, conditionally accepted,  .
2. Kazma, M. H. and A. F. **Taha** (2026). Partitioning and Observability in Linear Systems via Submodular Optimization. *IEEE Transactions on Automatic Control*. In press,  .
3. Mei, W., Y. Zhou, A. **Taha**, and C. Zhao (2026). On Input-to-State Stability Verification of Identified Models Obtained by Koopman Operator. *Journal of the Franklin Institute* **362**(2), 107490,  .
4. Albustami, A. A. and A. F. **Taha** (2025b). Breaking the Flow and the Bank: Stealthy Cyberattacks on Water Network Hydraulics. *Water Research*, 123719,  , .
5. Albustami, A. A., A. F. **Taha**, and E. Bou-Harb (2025b). Unmasking Stealthy Attacks on Nonlinear DAE Models of Power Grids. *International Journal of Electrical Power & Energy Systems* **167**, 110569,  , .
6. Bahavarnia, M., J. Ji, A. F. **Taha**, et al. (2025). On the Constrained CAV Platoon Control Problem. *IEEE Transactions on Control of Network Systems* **12**(2), 1552–1564,  .
7. Bahavarnia, M., M. Nadeem, and A. F. **Taha** (2025). Improving Power Systems Controllability via Edge Centrality Measures. *IEEE Transactions on Control of Network Systems, In Press* **12**(4), 2464, 2478, .
8. Bahavarnia, M. and A. F. **Taha** (2025). Quick Updates for the Perturbed Static Output Feedback Control Problem in Linear Systems With Applications to Power Systems. *IEEE Open Journal of Control Systems* **5**, 49–63,  .

9. Elsherif, S. M. and A. F. **Taha** (2025). Control Node Placement and Structural Controllability of Water Quality Dynamics in Drinking Networks. *Water Resources Research*, *In press* **61**, e2024WR039185, .
10. Kazma, M. and A. F. **Taha** (2025b). Revisiting the Optimal PMU Placement Problem in Multi-Machine Power Networks. *IEEE Transactions on Control System Technology* **33**(2), 493–511, , .
11. Kazma, M. H. and A. F. **Taha** (2025b). Stability and Uncertainty Propagation in Power Networks: A Lyapunov-Based Approach with Applications to Renewable Resources Allocation. *IEEE Transactions on Power Systems*, 3928–3942, , .
12. Mandouri, J., A. F. **Taha**, H. Baroud, C. Philip, P. Johnson, and S. Mahadevan (2025). Uncertainty Quantification and Reliability Assessment for Intermodal Freight Transportation. *Reliability Engineering & System Safety*, 111996, .
13. Riano-Briceno, G., A. Abokifa, A. **Taha**, and L. Sela (2025). Heuristic Space Reduction Method for Source Localization in Water Distribution Networks. *ACS ES&T Water* **5**(3), 1099–1111, .
14. Bahavarnia, M. and A. F. **Taha** (2024a). How Many Autonomous Vehicles Are Required to Stabilize Traffic Flow? *IEEE Control Systems Letters* **8**, 2547–2552, .
15. Elsherif, S. M., A. F. **Taha**, and A. A. Abokifa (2024). Disinfectant Control in Drinking Water Networks: Integrating Advection-Dispersion-Reaction Models and Byproduct Constraints. *Water Research* **267**, 122441, .
16. Elsherif, S. M., A. F. Taha, A. A. Abokifa, and L. Sela (2024). Comprehensive Framework for Controlling Nonlinear Multispecies Water Quality Dynamics. *Journal of Water Resources Planning and Management* **150**(2), 04023077, .
17. Gomes Jr, M. N., A. F. **Taha**, L. M. C. Rápalo, E. M. Mendiondo, and M. H. Giacomoni (2024). Real-Time Regulation of Detention Ponds via Feedback Control: Balancing Flood Mitigation and Water Quality. *Journal of Hydrology* **643**, 131866, .
18. Nadeem, M., M. Bahavarnia, and A. F. **Taha** (2024). Robust Feedback Control of Power Systems with Grid-Forming Solar Plants and Composite Loads. *IEEE Transactions on Power Systems* **39**(3), 4949–4962, , .
19. Nadeem, M. and A. F. **Taha** (2024a). Sorta Solving the OPF by Not Solving the OPF: DAE Control Theory and the Price of Realtime Regulation. *IEEE Open Journal on Control Systems* **3**, 253–265, .
20. Nadeem, M. and A. F. **Taha** (2024b). Structure-Preserving Model Order Reduction for Nonlinear DAE Models of Power Networks. *IEEE Transactions on Power Systems*, 2613–2625, , .
21. Salem, A. K., A. F. **Taha**, and A. A. Abokifa (2024). Graph Neural Networks-Based Dynamic Water Quality State Estimation in Water Distribution Networks. *Engineering Applications of Artificial Intelligence* **138**, 109426, .
22. Vishnoi, S. C., A. F. **Taha**, S. A. Nugroho, and C. G. Claudel (2024). Traffic State Estimation for Connected Vehicles Using the Second-Order Aw-Rascle-Zhang Traffic Model. *IEEE Transactions on Intelligent Transportation Systems* **25**(11), 16719–16733, .

23. Vishnoi, S. C., J. Ji, M. Bahavarnia, Y. Zhang, A. F. **Taha**, C. G. Claudel, and D. B. Work (2024). CAV Traffic Control to Mitigate the Impact of Congestion from Bottlenecks: A Linear Quadratic Regulator Approach and Microsimulation Study. *ACM Jounral on Autonomous Transportation Systems* **1**(2), 1–37, .
24. Bahavarnia, M., N. Muhammad, and A. F. **Taha** (2023). On Scaling Robust Feedback Control and State Estimation Problems in Power Networks. *Sustainable Energy, Grids and Networks* **36**, 101241, .
25. Elsherif, S. M., S. Wang, A. F. **Taha**, L. Sela, M. H. Giacomoni, and A. A. Abokifa (2023). Control-Theoretic Modeling of Multi-Species Water Quality Dynamics in Drinking Water Networks: Survey, Methods, and Test Cases. *Annual Reviews in Control*. In press, .
26. Guo, Y., S. Wang, A. F. **Taha**, and T. H. Summers (2023). Optimal Pump Control for Water Distribution Networks via Data-Based Distributional Robustness. *IEEE Transactions on Control Systems Technology* **31**(1), 114–129, .
27. Moeini, M., L. Sela, A. F. Taha, and A. A. Abokifa (2023). Bayesian Optimization of Booster Disinfection Scheduling in Water Distribution Networks. *Water Research*, 120117, .
28. Nugroho, S. A. and A. F. Taha (2023). Load- and Renewable-Following Control of Linearization-Free Differential Algebraic Equation Power System Models. *IEEE Transactions on Control Systems Technology* **31**(4), 1774–1786, .
29. Oleyaeimotlagh, Y., T. Banerjee, A. **Taha**, and E. John (2023). Quickest Change Detection in Statistically Periodic Processes with Unknown Post-Change Distribution. *Sequential Analysis* **42**(4), 404–437, .
30. Wang, S., A. Chakrabarty, and A. F. **Taha** (2023). Data-Driven Identification of Dynamic Quality Models in Drinking Water Networks. *Journal of Water Resources Planning and Management* **149**(4), 04023008, .
31. Gomes Júnior, M. N., M. H. Giacomoni, A. F. **Taha**, and E. M. Mendiondo (2022). Flood Risk Mitigation and Valve Control in Stormwater Systems: State-Space Modeling, Control Algorithms, and Case Studies. *Journal of Water Resources Planning and Management* **148**(12), 04022067, .
32. Nadeem, M., S. A. Nugroho, and A. F. **Taha** (2022). Dynamic State Estimation of Nonlinear Differential Algebraic Equation Models of Power Networks. *IEEE Transactions on Power Systems* **38**(3), 2539–2552, .
33. Nugroho, S. A., A. F. **Taha**, N. Gatsis, and J. Zhao (2022). Observers for Differential Algebraic Equation Models of Power Networks. *IEEE Transactions on Control of Network Systems* **9**(3), 1531–1543, .
34. Nugroho, S. A., A. F. **Taha**, and V. Hoang (2022). Nonlinear Dynamic Systems Parameterization Using Interval-Based Global Optimization: Computing Lipschitz Constants and Beyond. *IEEE Transactions on Automatic Control* **67**(8), 3836–3850, .
35. Nugroho, S. A., S. Vishnoi, A. F. **Taha**, C. Claudel, and T. Banerjee (2022). Where Should Traffic Sensors Be Placed on Highways? *IEEE Transactions on Intelligent Transportation Systems* **23**(8), 13026–13039, .

36. Wang, S., A. F. **Taha**, A. Chakrabarty, L. Sela, and A. Abokifa (2022). Model Order Reduction for Water Quality Dynamics. *Water Resources Research* **58**(4), e2021WR029856, .
37. Fontenot, H., K. S. Ayyagari, B. Dong, N. Gatsis, and A. F. **Taha** (2021). Buildings-to-Distribution-Network Integration for Coordinated Voltage Regulation and Building Energy Management via Distributed Resource Flexibility. *Sustainable Cities and Society* **69**, 102832, .
38. Haber, A., S. Nugroho, P. Torres, and A. F. **Taha** (2021). Control Node Selection Algorithm for Nonlinear Dynamic Networks. *IEEE Control Systems Letters* **5**(4), 1195–1200, .
39. Liu, Y., A. K. Singh, J. Zhao, A. P. Meliopoulos, B. Pal, M. A. M. Ariff, T. V. Cutsem, M. Glavic, Z. Huang, I. Kamwa, L. Mili, S. Mir, A. F. **Taha**, V. Terzija, and S. Yu (2021). Dynamic State Estimation for Power System Control and Protection. *IEEE Transactions on Power Systems* **36**(6), 5909–5921, .
40. Nugroho, S. A. and A. F. **Taha** (2021). Towards Understanding Sensor and Control Nodes Selection in Nonlinear Dynamic Systems: Lyapunov Theory Meets Branch-and-Bound. *Automatica* **134**, 109904, .
41. Nugroho, S. A., A. F. **Taha**, and C. Claudel (2021). A Control-Theoretic Approach for Scalable and Robust Traffic Density Estimation Using Convex Optimization. *IEEE Transactions on Intelligent Transportation Systems* **22**(1), 64–78, .
42. Shadfan, R., S. Wang, S. A. Nugroho, F. Chen, and A. F. **Taha** (2021). Lipschitz Hydraulic Model for Water Distribution Networks. *Electronic Research Archive*. In press, .
43. **Taha**, A. F., S. Wang, Y. Guo, T. Summers, N. Gatsis, M. Giacomoni, and A. Abokifa (2021). Revisiting the Water Quality Sensor Placement Problem: Optimizing Network Observability and State Estimation Metrics. *Journal of Water Resources Planning and Management* **147**(7), 04021040, .
44. Wang, S., A. F. **Taha**, and A. Abokifa (2021). How Effective Is Model Predictive Control in Real-Time Water Quality Regulation? State-Space Modeling and Scalable Control. *Water Resources Research* **57**(5), e2020WR027771, .
45. Wang, S., A. F. **Taha**, L. Sela, N. Gatsis, and M. Giacomoni (2021). Probabilistic State Estimation in Water Distribution Networks. *IEEE Transactions on Control Systems Technology* **30**(2), 507–519, .
46. Lee, J., A. F. **Taha**, N. Gatsis, and D. Akopian (2020). Tuning-Free, Low Memory Robust Estimator to Mitigate GPS Spoofing Attacks. *IEEE Control Systems Letters* **4**(1), 145–150, .
47. Nugroho, S. A., A. F. **Taha**, and J. Qi (2020). Robust Dynamic State Estimation of Synchronous Machines with Asymptotic State Estimation Error Performance Guarantees. *IEEE Transactions on Power Systems* **35**(3), 1923–1935, .
48. Risbud, P., N. Gatsis, and A. F. **Taha** (2020). Multi-Period Power System State Estimation with PMUs under GPS Spoofing Attacks. *Journal of Modern Power Systems and Clean Energy* **8**(4), 597–606, , .

49. Wang, S., A. F. **Taha**, N. Gatsis, and M. Giacomoni (2020). Receding Horizon Control for Drinking Water Networks: The Case for Geometric Programming. *IEEE Transactions on Control of Network Systems* **7**(3), 1151–1163, .
50. Wang, S., A. F. **Taha**, L. Sela, M. Giacomoni, and N. Gatsis (2020). A New Derivative-Free Linear Approximation for Solving the Network Water Flow Problem with Convergence Guarantees. *Water Resources Research* **56**(3), e2019WR025694, .
51. Bazrafshan, M., N. Gatsis, A. F. **Taha**, and J. A. Taylor (2019). Coupling Load-Following Control with OPF. *IEEE Transactions on Smart Grid* **10**(3), 2495–2506, .
52. Nugroho, S. A., A. F. **Taha**, N. Gatsis, T. H. Summers, and R. Krishnan (2019). Algorithms for Joint Sensor and Control Nodes Selection in Dynamic Networks. *Automatica* **106**, 124–133, .
53. Risbud, P., N. Gatsis, and A. F. **Taha** (2019). Vulnerability Analysis of Smart Grids to GPS Spoofing. *IEEE Transactions on Smart Grid* **10**(4), 3535–3548, , .
54. **Taha**, A. F., M. Bazrafshan, S. Nugroho, N. Gatsis, and J. Qi (2019). Robust Control for Renewable-Integrated Power Networks Considering Input Bound Constraints and Worst-Case Uncertainty Measure. *IEEE Transactions on Control of Network Systems* **6**(3), 1210–1222, .
55. **Taha**, A. F., N. Gatsis, B. Dong, A. Pipri, and Z. Li (2019). Buildings-to-Grid Integration Framework. *IEEE Transactions on Smart Grid* **10**(2), 1237–1249, .
56. **Taha**, A. F., N. Gatsis, T. Summers, and S. Nugroho (2019). Time-Varying Sensor and Actuator Selection for Uncertain Cyber-Physical Systems. *IEEE Transactions on Control of Network Systems* **6**(2), 750–762, .
57. Wang, S., A. F. **Taha**, J. Wang, K. Kvaternik, and A. Hahn (2019). Energy Crowdsourcing and Peer-to-Peer Energy Trading in Blockchain-Enabled Smart Grids. *IEEE Transactions on Systems, Man, and Cybernetics: Systems* **49**(8), 1612–1623, .
58. Dong, B., Z. Li, A. **Taha**, and N. Gatsis (2018). Occupancy-Based Buildings-to-Grid Integration Framework for Smart and Connected Communities. *Applied Energy* **219**, 123–137, .
59. Khalajmehrabadi, A., N. Gatsis, D. Akopian, and A. F. **Taha** (2018). Real-Time Rejection and Mitigation of Time Synchronization Attacks on the Global Positioning System. *IEEE Transactions on Industrial Electronics* **65**(8), 6425–6435, .
60. Qi, J., A. F. **Taha**, and J. Wang (2018). Comparing Kalman Filters and Observers for Power System Dynamic State Estimation with Model Uncertainty and Malicious Cyber Attacks. *IEEE Access* **6**, 77155–77168, .
61. **Taha**, A. F., J. Qi, J. Wang, and J. H. Panchal (2018). Risk Mitigation for Dynamic State Estimation Against Cyber Attacks and Unknown Inputs. *IEEE Transactions on Smart Grid* **9**(2), 886–899, .
62. Taormina, R., S. Galelli, N. O. Tippenhauer, E. Salomons, A. Ostfeld, D. G. Eliades, M. Aghashahi, R. Sundararajan, M. Pourahmadi, M. K. Banks, et al. (2018). Battle of the Attack Detection Algorithms: Disclosing Cyber Attacks on Water Distribution Networks. *Journal of Water Resources Planning and Management* **144**(8), 04018048, .
63. **Taha**, A. F., A. Elmahdi, J. H. Panchal, and D. Sun (2015). Unknown Input Observer Design and Analysis for Networked Control Systems. *International Journal of Control* **88**(5), 920–934, .

64. **Taha**, A. F., N. A. Hachem, and J. H. Panchal (2014). A Quasi-Feed-In-Tariff Policy Formulation in Micro-Grids: A Bi-Level Multi-Period Approach. *Energy Policy* **71**, 63–75, .
65. **Taha**, A. F. and J. H. Panchal (2013). Decision-Making in Energy Systems with Multiple Technologies and Uncertain Preferences. *IEEE Transactions on Systems, Man, and Cybernetics: Systems* **44**(7), 894–907, .

Journal Articles Under Review

1. Albustami, A. A. and A. F. **Taha** (2026a). DAE-Aware Bayesian Inference for Joint Generator-Network Parameter Estimation. *Electric Power Systems Research*. In review, second round, .
2. Albustami, A. A. and A. F. **Taha** (2026c). T-VCI: Timescale-Aware Voltage Controllability Index for Power Systems. *IEEE Control Systems Letters*. In review, first round, .
3. Albustami, A. A. and A. F. **Taha** (2026d). The Iberian Blackout: A Black Swan or a Gray Rhino? A Thorough Power System Analysis. *IEEE Transactions on Power Systems*. In review, first round, .
4. Elsherif, S. M. and A. F. **Taha** (2026). Climate Science and Control Engineering: Insights, Parallels, and Connections. *Annual Reviews in Control*. In review, first round, .
5. Hyde, D., C. Kadapa, A. Albustami, and A. F. **Taha** (2026). Progress and Perils of PINNs: Perspectives on Applying Physics-Informed Neural Networks to Science and Engineering Problems. *Computing in Science and Engineering*. In review, first round, , .
6. Mandouri, J., A. F. **Taha**, H. Baroud, C. Philip, and P. Johnson (2026). Cascading Economic Losses from Port Disruptions under Capacity-Constrained Multimodal Freight Networks. *Transportation Research Part E: Logistics and Transportation Review*. In review, first round, .
7. Mandouri, J., A. F. **Taha**, H. Baroud, C. Philip, P. Johnson, and P. L. Durango-Cohen (2026). The Intermodal Paradox: When and How Trucks Outperform Greener Modes. *Transportation Research Part C*. In review, first round, .
8. Nadeem, M., M. Bahavarnia, and A. F. **Taha** (2026). Wide-Area Feedback Control for Renewables-Heavy Power Systems: A Comparative Study of Reinforcement Learning and Lyapunov-Based Design. *Journal of Modern Power Systems and Clean Energy*. In review, first round, .
9. Nóbrega Gomes Jr, M., I. Matheus Benites, S. M. Elsherif, A. F. **Taha**, and M. H. Giacomoni (2026). Modeling and Design Optimization of Looped Water Distribution Networks Using MS Excel: Developing the Open-Source X-WHAT Model. *Water Resources Management*. In review, first round, .
10. **Taha**, A. F. (2026). Measuring the Uncontrollable. *IEEE Transactions on Automatic Control*. In review, first round,.
11. **Taha**, A. F., M. Kazma, and A. Albustami (2026). Revisiting the PBH Test: Broken Eigenvalues and Fast Algorithms. *IEEE Control Systems Letters*. In review, first round, .
12. Zhang, B., S. Wang, S. Sun Guangli, A. **Taha**, and X. Tao (2026). EZ-RRT: Enhancing RRT with Zonotope-Based Swept Volume Modeling for Safe Robotic Arm Path Planning. *Expert Systems With Applications*. In review, first round, .

13. Zhang, Z., A. **Taha**, E. Bou-Harb, X. Tao, and S. W. Wang (2026). When Time Meets Space: Entropy Integration and Dynamic Threshold for Adaptive DDoS Detection in SDN. *IEEE Transactions on Networking*. In review, first round,  .
14. Bahavarnia, M. and A. F. **Taha** (2023). A Non-Overshooting LQR Output Feedback Design: Parametric and Non-Parametric Procedures. *IEEE Control Systems Letters*. In review, first round,  .

Peer-Reviewed Conference Papers

1. Albustami, A. A. and A. F. **Taha** (2026b). DAE-Aware Bayesian Inference for Joint Generator-Network Parameter Estimation. In: *Power Systems Computation Conference (PSCC), Cyprus*. In press, .
2. Liu, Y., H. Zhang, A. F. **Taha**, M. Ma, and T. Johnson (2026). Modeling Spectral Energy Shifts in Spatio-Temporal Graph Anomaly Detection. In: *Forty-Third International Conference on Machine Learning ICML*. In review, , .
3. Albustami, A. A. and A. F. **Taha** (2025a). Analyzing Property P of Topologically Perturbed Power System Models. In: *2025 IEEE 64th Conference on Decision and Control (CDC)*, pp.1621–1626, .
4. Albustami, A. A., A. F. **Taha**, and E. Bou-Harb (2025a). Stealthy Power Systems Data Attacks. In: *2025 American Control Conference (ACC)*, pp.736–741, , .
5. Avdalović, A., J. Khoury, A. **Taha**, and E. Bou-Harb (2025). Enhancing Network Security Management in Water Systems Using FM-Based Attack Attribution. In: *NOMS 2025-2025 IEEE Network Operations and Management Symposium*, pp.1–10, , .
6. Bahavarnia, M., S. Elsherif, and A. **Taha** (2025). Influential Pipes in Water Networks. In: *IEEE Conference on Decision and Control (CDC 2025)*, pp.4077–4082, .
7. Elsherif, S. M., M. H. Kazma, and A. F. **Taha** (2025). Controllability Gramians Make Water Safer: Water Quality and Hydraulic Regulation in Drinking Networks. In: *2025 American Control Conference (ACC)*, pp.4794–4799, .
8. Kazma, M. and A. F. **Taha** (2025a). Generalizable Stability Metrics for Power Grids. In: *American Control Conference 2025, Denver, Colorado*, pp.2096–2101, .
9. Kazma, M. H. and A. F. **Taha** (2025a). Multilinear Extensions in Submodular Optimization for Optimal Sensor Scheduling in Nonlinear Networks. In: *American Control Conference 2025, Denver, Colorado*, pp.3022–3027, .
10. She, Y., S. Wang, A. Taha, and X. Tao (2025). Enhancing Vehicle Platooning Safety via Control Node Placement and Sizing Under State and Input Bounds. In: *American Control Conference 2025, Denver, Colorado*, pp.1629–1634, , .
11. Bahavarnia, M., J. Ji, A. F. **Taha**, and D. B. Work (2024). Constrained CAV Control for Mixed Vehicular Platoons via Gain Parameterizations and Padé Approximations. In: *2024 IEEE 63rd Conference on Decision and Control (CDC)*, pp.4941–4946, .
12. Bahavarnia, M. and A. F. **Taha** (2024b). Strongly Stabilizing LQR Output Feedback Designs via Parametric and Non-Parametric Procedures. In: *2024 American Control Conference (ACC)*, pp.2618–2623, .
13. Elsherif, S. M., M. H. Kazma, A. F. **Taha**, and A. A. Abokifa (2024). Water Quality Controllability Metrics, Limitations, and Hydraulic Dependencies. In: *World Environmental and Water Resources Congress 2024*, pp.1390–1399, .
14. Kazma, M. and A. F. **Taha** (2024). ODE Transformations of DAE Power System Models. In: *IEEE Power Engineering Society (PES) Conference*. In press, .

15. Kazma, M. H. and A. F. **Taha** (2024). ODE Transformations of Nonlinear DAE Power Systems. In: *2024 IEEE Power & Energy Society General Meeting (PESGM)*, pp.1–5, .
16. Kazma, M. and A. F. **Taha** (2023). On Modularity of the Optimal PMU Placement Problem in Power Networks. In: *The 2023 American Control Conference (ACC)*, pp.1–6, , .
17. Kazma, M. H., S. A. Nugroho, A. Haber, and A. F. **Taha** (2023). State-Robust Observability Measures for Sensor Selection in Nonlinear Dynamic Systems. In: *2023 62nd IEEE Conference on Decision and Control (CDC)*. IEEE, pp.8418–8426, .
18. Kazma, M. H. and A. F. **Taha** (2023). Optimal Placement of PMUs in Power Networks: Modularity Meets A Priori Optimization. In: *2023 American Control Conference (ACC)*. IEEE, pp.4489–4494, , .
19. Nadeem, M., M. Bahavarnia, and A. F. **Taha** (2023). On Wide-Area Control of Solar-Integrated DAE Models of Power Grids. In: *2023 American Control Conference (ACC)*. IEEE, pp.4495–4500, .
20. Nadeem, M., M. Bahavarnia, and A. F. **Taha** (2023). Robust State Feedback Controller for Power Systems with Grid-Forming Solar Plants and Composite Loads. In: *The 2023 American Control Conference (ACC)*, pp.1–6, .
21. Vishnoi, S. C., J. Ji, M. Bahavarnia, Y. Zhang, A. F. Taha, C. G. Claudel, and D. B. Work (2023). Exploring CAV-Based Traffic Control for Improving Traffic Conditions in the Face of Bottlenecks. In: *2023 62nd IEEE Conference on Decision and Control (CDC)*. IEEE, pp.98–104, .
22. Aryasomyajula, V. A., N. Gatsis, and A. F. **Taha** (2022). Power System Dynamic State Estimation Based on Discretized Nonlinear Differential Algebraic Equation Models. In: *2022 North American Power Symposium (NAPS)*, pp.1–6, .
23. Júnior, M. N. G., M. H. Giacomoni, A. F. **Taha**, and E. M. Mendiondo (2022). Model Predictive Control for Stormwater Reservoirs: Investigating Effects of Climate Change and Urbanization. In: *2022 IEEE Conference on Control Technology and Applications (CCTA)*, pp.691–698, .
24. Nadeem, M. and A. F. **Taha** (2022). Robust Dynamic State Estimation of Multi-Machine Power Networks with Solar Farms and Dynamics Loads. In: *2022 IEEE 61st Conference on Decision and Control (CDC)*, pp.7174–7179, .
25. Nadeem, M., A. F. **Taha**, and S. A. Nugroho (2022). Impact of Uncertainty from Renewables on Dynamic State Estimation of Power Networks. In: *2022 IEEE Power & Energy Society General Meeting (PESGM)*, pp.1–5, .
26. Nugroho, S., S. Vishnoi, A. **Taha**, and C. Claudel (2022). Optimal Sensor Placement on Highway Networks: A Traffic Dynamics Based Approach. In: *Transportation Research Board (TRB)*, pp.1–10, .
27. Nugroho, S. A. and A. F. **Taha** (2022). How Vintage Linear Systems Controllers Have Become Inadequate In Renewables-Heavy Power Systems: Limitations and New Solutions. In: *2022 American Control Conference (ACC)*, pp.4553–4558, .

28. Vishnoi, S. C., A. F. **Taha**, S. A. Nugroho, and C. G. Claudel (2022). On Differential Privacy and Traffic State Estimation Problem for Connected Vehicles. In: *2022 IEEE 61st Conference on Decision and Control (CDC)*, pp.1162–1167, .
29. Ayyagari, K., S. Wang, N. Gatsis, A. F. **Taha**, and M. Giacomoni (2021). Co-Optimization of Interdependent Water and Power Distribution Networks. In: *2021 IEEE Power and Energy Society Innovative Smart Grid Technologies Conference*. In press, , .
30. Ayyagari, K. S., S. Wang, N. Gatsis, A. F. **Taha**, and M. Giacomoni (2021). Energy-Efficient Optimal Water Flow Considering Pump Efficiency. In: *2021 IEEE Madrid PowerTech*, pp.1–6, , .
31. Nugroho, S., A. F. **Taha**, N. Gatsis, and J. Zhao (2021). On the Simultaneous Estimation of Dynamic and Algebraic States in Power Networks via State Observer. In: *2021 5th IEEE Conference on Control Technology and Applications (CCTA)*, pp.309–314, .
32. Nugroho, S., S. Vishnio, A. F. **Taha**, and C. Claudel (2021). Feedback Stabilization and Output Tracking for Discrete-Time Lipschitz Nonlinear Systems via Iterative Convex Approximations. In: *2021 American Control Conference (ACC)*. In press, .
33. Banerjee, T., E. Adib, A. Taha, and E. John (2020). Sequential Methods for Detecting a Change in the Distribution of an Episodic Process. In: *ICASSP 2020 - 2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp.6009–6013, .
34. Nugroho, S. A., A. F. **Taha**, and C. Claudel (2019). Traffic Density Modeling and Estimation on Stretched Highways: The Case for Lipschitz-Based Observers. In: *2019 American Control Conference (ACC)*, pp.2658–2663, .
35. Nugroho, S. and A. F. **Taha** (2019). Sensor Placement Strategies for Some Classes of Nonlinear Dynamic Systems via Lyapunov Theory. In: *2019 IEEE 58th Conference on Decision and Control (CDC)*, pp.4551–4556, .
36. Nugroho, S. A. and A. F. **Taha** (2019). On the Need for Sensor and Actuator Placement Algorithms in Nonlinear Systems: WIP Abstract. In: *Proceedings of the 10th ACM/IEEE International Conference on Cyber-Physical Systems*. ACM, pp.304–305, .
37. Nugroho, S. A., A. F. **Taha**, and J. Qi (2019). Characterizing the Nonlinearity of Power System Generator Models. In: *2019 American Control Conference, Philadelphia, US*, pp.1936–1941, .
38. Wang, S., A. F. **Taha**, N. Gatsis, and M. Giacomoni (2019). Geometric Programming-Based Control for Nonlinear, DAE-Constrained Water Distribution Networks. In: *2019 American Control Conference, Philadelphia, US*, pp.1470–1475, .
39. Wang, S., A. F. **Taha**, N. Gatsis, and M. H. Giacomoni (2019a). Control of Water Distribution Networks Using Convex Approximations: WIP Abstract. In: *Proceedings of the 10th ACM/IEEE International Conference on Cyber-Physical Systems*. ACM, pp.301–301, .
40. Wang, S., A. F. **Taha**, N. Gatsis, and M. H. Giacomoni (2019b). Geometric Programming Approach for Optimal Control of Water Distribution Networks. In: *2019 World Environmental & Water Resources Congress, Pittsburgh*, .

41. Wang, S., A. F. **Taha**, N. Gatsis, M. H. Giacomoni, and L. Sela (2019). State Estimation in Water Distribution Networks through a New Successive Linear Approximation. In: *IEEE 58th Conference on Decision and Control (CDC), Nice, France*. To Appear, 💧.
42. Ayyagari, K. S., N. Gatsis, A. F. **Taha**, and B. Dong (2018). On Static and Adaptive Policies for Chance-Constrained Voltage Regulation. In: *2018 52nd Asilomar Conference on Signals, Systems, and Computers*. IEEE, pp.1858–1862, ⚡.
43. Bazrafshan, M., N. Gatsis, M. Giacomoni, and A. **Taha** (2018). A Fixed-Point Iteration for Steady-State Analysis of Water Distribution Networks. In: *2018 IEEE Global Conference on Signal and Information Processing (GlobalSIP)*. IEEE, pp.880–884, 💧.
44. Bhounsule, P. A., A. **Taha**, and S. Nugruho (2018). Control Systems and Robotics Outreach to Middle-School Girls: Approach, Results, and Suggestions. In: *ASEE Gulf-Southwest Section Annual Conference*. **Best paper award, second place**.
45. Dong, B., A. F. **Taha**, N. Gatsis, Z. Li, and A. Pipri (2018). Impact of Occupancy-Based Buildings-to-Grid Integration on Frequency Regulation in Smart Grids. In: *2018 Annual American Control Conference (ACC)*, pp.5399–5405, ⚡.
46. Ebrahimi, N., S. Nugroho, A. F. **Taha**, N. Gatsis, W. Gao, and A. Jafari (2018). Dynamic Actuator Selection and Robust State-Feedback Control of Networked Soft Actuators. In: *2018 IEEE International Conference on Robotics and Automation (ICRA)*, pp.2857–2864.
47. Nugroho, S., A. F. **Taha**, T. Summers, and N. Gatsis (2018). Simultaneous Sensor and Actuator Selection/Placement through Output Feedback Control. In: *2018 Annual American Control Conference (ACC)*, pp.4159–4164, ⬡.
48. Nugroho, S., M. Bazrfashan, A. F. **Taha**, N. Gatsis, and J. Qi (2018). Robust Control of Power Networks under Worst-Case Load and Renewables Uncertainty. In: *2018 Annual American Control Conference (ACC)*. IEEE, pp.6156–6161, ⚡.
49. Wang, S., A. F. **Taha**, and J. Wang (2018). Blockchain-Assisted Crowdsourced Energy Systems. In: *2018 IEEE Power Energy Society General Meeting (PESGM)*, pp.1–5, ⚡.
50. Ayyagari, K., N. Gatsis, and A. **Taha** (2017). Chance Constrained Optimization of Distributed Energy Resources via Affine Policies. In: *5th IEEE Global Conference on Signal and Information Processing*, ⚡.
51. Giacomoni, M., N. Gatsis, and A. **Taha** (2017). Identification of Cyber Attacks on Water Distribution Systems by Unveiling Low-Dimensionality in the Sensory Data. In: *World Environmental and Water Resources Congress 2017*, pp.660–675, 💧.
52. Li, Z., A. Pipri, B. Dong, N. Gatsis, A. **Taha**, and N. Yu (2017). Modelling, Simulation and Control of Smart and Connected Communities. In: *Building Simulation*, ⚡.
53. **Taha**, A. F., N. Gatsis, T. Summers, and S. Nugroho (2017). Actuator Selection for Cyber-Physical Systems. In: *2017 American Control Conference (ACC)*, pp.5300–5305, ⬡.
54. Bazrafshan, M., N. Gatsis, A. F. **Taha**, and J. A. Taylor (2016). Augmenting the Optimal Power Flow for Stability. In: *2016 IEEE 55th Conference on Decision and Control (CDC)*. IEEE, pp.4104–4109, ⚡.

55. Risbud, P., N. Gatsis, and A. **Taha** (2016). Assessing Power System State Estimation Accuracy with GPS-Spoofed PMU Measurements. In: *2016 IEEE Power & Energy Society Innovative Smart Grid Technologies Conference (ISGT)*. IEEE, pp.1–5, .
56. Elmahdi, A., A. F. **Taha**, and D. Sun (2014). Observer-Based Decentralized Control Scheme for Stability Analysis of Networked Systems. In: *11th IEEE International Conference on Control & Automation (ICCA)*. IEEE, pp.857–862, .
57. Elmahdi, A., A. F. **Taha**, D. Sun, and J. H. Panchal (2014). An Optimal General Purpose Scheduler for Networked Control Systems. In: *2014 IEEE International Conference on Systems, Man, and Cybernetics (SMC)*. IEEE, pp.234–239, .
58. **Taha**, A. F., A. Elmahdi, J. H. Panchal, and D. Sun (2014a). Networked Unknown Input Observer Analysis and Design for Time-Delay Systems. In: *2014 IEEE International Conference on Systems, Man, and Cybernetics (SMC)*. IEEE, pp.3278–3283, .
59. **Taha**, A. F., A. Elmahdi, J. H. Panchal, and D. Sun (2014b). Pure Time Delay Analysis for Decentralized Networked Control Systems. In: *ASME 2014 Dynamic Systems and Control Conference*. American Society of Mechanical Engineers, pp.V003T47A001, .
60. **Taha**, A. F., A. Elmahdi, J. H. Panchal, and D. Sun (2014c). Stability Analysis of Networked Control Systems with Unknown Inputs. In: *2014 52nd Annual Allerton Conference on Communication, Control, and Computing (Allerton)*. IEEE, pp.936–942, .
61. Elmahdi, A., A. F. **Taha**, S. Hui, and S. H. Żak (2012). A Hybrid Scheduling Protocol to Improve Quality of Service in Networked Control Systems. In: *2012 50th Annual Allerton Conference on Communication, Control, and Computing (Allerton)*. IEEE, pp.98–105, .

Intellectual Property

Patents

1. Dong, B., A. **Taha**, N. Gatsis, Z. Li, and A. Pipri (n.d.). *Systems and Methods for Optimizing Buildings-to-Grid Integration*. U.S. Patent Application No. 62-516830, patent filed December 13, 2018, .
2. Khalajmehrabadi, A., N. Gatsis, D. Akopian, and A. **Taha** (n.d.). *Real-Time Detection and Mitigation of Time Synchronization Attacks on the Global Positioning System*. U.S. Patent Application No. 16-227744, patent filed December 20, 2018, .
3. Wang, S., A. **Taha**, and J. Wang (n.d.). *Energy Crowdsourcing and Peer-to-Peer Energy Trading in Blockchain Enabled Smart Grids*. U.S. Patent Application No. 62-769377., provisional patent filed November 19, 2018, .

Teaching and Student Advising

Graduate and Undergraduate Student Advising

➤ **Vanderbilt University (Fall 2021–Present)**

- *PhD Students:*
  - Salma ElSherif, PhD, May 2025
    - Dissertation title: *Monitoring and Control of Quantity-Quality Dynamics for Resilient Drinking Water Networks*
    - Current affiliation: *Staff Water Engineer, Arcadis*
  - Muhammad Nadeem, PhD, May 2025
    - Dissertation title: *Control, Order Reduction, and Identification of Nonlinear Differential-Algebraic Models of Renewables-Heavy Power Systems*
    - Current affiliation: *Postdoc, Florida International University*
  - Mohamad Kazma, August 2026 (Expected)
  - Daokuan Zhu, August 2024–May 2025
  - Abdallah Albustami, August 2028 (Expected)
  - Gavin Blair August 2030 (Expected)
  - Jafar Mandouri August 2029 (Expected)
- *Postdocs:*
  - Hongchao Zhang, August 2025–Currently (co-advised with Meiyi Ma and Taylor Johnson)
  - Wenjie Mei, August 2023–May 2025
  - MirSaleh Bahavarnia, August 2022–May 2025

➤ **The University of Texas at San Antonio (Fall 2015–Fall 2021)**

- *PhD Students:*
  - Sebastian Nugroho, PhD, May 2021
    - Dissertation title: *Control Node and Sensor Selection in Dynamical Systems*
    - Current affiliation: *Connected and Intelligent Systems Technical Specialist, Cummins Inc.*
  - Shen Wang, PhD, May 2021
    - Dissertation title: *Control Theory for Water Quality Regulation in Drinking Water Distribution Networks*
    - Current affiliation: *Associate Professor, Beijing University of Posts and Telecommunications*
- Advised (in secondary capacity) the following PhD and Master's students: Alfredo Avila, Ankur Pipri, Anvesh Anche, Raviraj Tavaragondi (major adviser), Amir Baharvandi, Hamid Fekri, Manan Bhagat, Neharika Raut (major adviser), Morteza Dabaghmanesh, Aime Mutuyeyezu, Paresh Risbud, Mohammadhafez Bazrafshan.
- *Undergraduate Students:* Mackenzie Hall, Antonio Anzaldua, Junhwan Lee, Diane Squire.

➤ **Purdue University (Fall 2014–Summer 2015)**

- *Visiting Scholars:* Nadim Hachem, Murtuza Shergadwala, Siva Chaitanya, Parth Paritosh.

Course Instructor

➤ **Vanderbilt University**

- CE 4240, Infrastructure Systems Engineering (Fall 2022, 2023, 2024)
- CE 5999, Engineering Convex Optimization (Spring 2022, 2023)
- CE 2898, Intro to Numerical Methods in CEE (Spring 2025, 2026)
  * New class added to the required undergraduate CEE degree curriculum.

➤ **The University of Texas at San Antonio**

- EE 1322, Introduction to ECE (Fall 2020, Spring 2021)
- EE 3413, Analysis and Design of Control Systems (Spring 2016, 2020)
- EE 5143, Linear Systems and Control (Fall 2016, 2017, 2019, 2020; Spring 2019)
- EE 5243, Optimization and Control of CPS (Fall 2015; Spring 2017, 2018, 2019, 2021)
- EE 6953/6952, Independent Study (Fall 2015–Fall 2020)

Service, Outreach, and Media

University Service

- The University of Texas at San Antonio (August 2015–August 2021)
  - Member of university-level search committees: College of Liberal and Fine Arts: Cybersecurity and Communications (2017)
  - Workshop on obtaining permanent residency in the US (2017)
  - Member of college-level search committee College of Engineering Cluster Hire: Machine learning and Data Analytics Department (2017–2018)
  - Member of department-level search committee: Electrical and Computer Engineering: Energy Systems (2016–2017)
  - Leader of the ECE website redesign task-force (2016)
  - Member of the ECE Graduate Student Recruitment Committee (2017)
  - Member of the ECE Awards Committee (2016–2021)
  - Member of more than 14 Ph.D. and Master's thesis committees in the College of Engineering (2015—2021)
  - Course reorganization for controls concentration (2016–2021)
  - Organizer of the Electrical and Computer Engineering seminar (2018)
- Vanderbilt University (August 2021–Present)
  - Chair of the Senate Affairs Committee (2024–2025)
  - Member of the Vanderbilt University Faculty Senate (2024–Present)
  - Member of more than 16 Ph.D. committees in the Vanderbilt School of Engineering (2021–Present)
  - Member of department-level search committee: Civil and Environmental Engineering (2024)

Editorial Service

- **Associate Editor**, *IEEE Transactions on Control of Network Systems* (2022–Present)
- **Electronics Publications Chair**, IEEE Control Systems Society (2018–2022)
  - Sole editor of the IEEE CSS E-Letter (dist. 17,000+ subscribers).
- **Associate Editor**, *IEEE Transactions on Smart Grid* (2018–2021)
- **Guest Editor**: *IEEE Open Journal of Control Systems* (2023–2024); *Annual Reviews in Control* (2022–2023); *IEEE Access* (2020–2021).
- **Social Media Coordinator**, IEEE Control Systems Society (2017–2021).

Proposal Reviews

- National Science Foundation Panels (2016, 2019, 2020, 2021, 2022, 2023, 2024, 2025)

- Air Force Office of Scientific Research; Internal UTSA & Vanderbilt Grants.

Journal Reviews

- IEEE Transactions on Automatic Control
- IEEE Transactions on Control of Network Systems
- IEEE Transactions on Control Systems Technology
- IEEE Transactions on Energy Conversion
- IEEE Transactions on Power Systems
- IEEE Transactions on Smart Grid
- IEEE Transactions on Sustainable Energy
- IEEE Transactions on Industrial Electronics
- IEEE Transactions on Industrial Informatics
- IEEE Transactions on Systems, Man and Cybernetics
- IEEE Transactions on Information Forensics & Security
- IEEE Transactions on Engineering Management
- IEEE Transactions on Sustainable Energy
- IEEE Journal on Selected Topics in Signal Processing Special Issue
- IEEE Control Systems Letters
- IEEE Power Engineering Letters
- IEEE Open Journal of Control Systems
- IEEE Access
- Automatica
- Electric Power Systems Research
- International Journal of Robust and Nonlinear Control
- Journal of Renewable and Sustainable Energy
- Journal of Vibration and Control
- Journal of the Franklin Institute
- Energies
- Energy Policy
- Water Resources Research
- Water Research
- Annual Reviews in Control
- Journal of Water Resources Management and Planning

Conference Reviews

- American Control Conference (2013–Present)
- IEEE Conference on Decision and Control (2012–Present)
- IEEE Conference on Control Technology and Applications (2022–Present)
- Power and Energy Society General Meeting (2014–Present)
- IFAC Workshop on Distributed Estimation and Control in Networked Systems
- Intelligent System Applications to Power Systems Conference
- Hawaii International Conference on System Sciences
- ASME International Design Engineering Technical Conferences
- IEEE Multi-Conference on Systems and Control
- ASME Dynamic Systems and Control Conference

Conference Service

- **Session Chairs**: IEEE Conference on Decision and Control (CDC) and American Control Conference (2015–Present).
- **Sustainability Chair**: 2021 IEEE CDC; 2026 IEEE CDC.
- **Publication Committee**: 2026 American Control Conference; 2021 IEEE ISGT.

Outreach: IEEE Control Systems Camp (San Antonio)

- Secured funding to lead a 3-day robotics camp for 8th-grade girls from low-income high schools.
- Focus: Hands-on LEGO Mindstorms EV3 labs to encourage STEM careers.
- Award: Second Best Paper, 2018 ASEE Gulf-Southwest Section Annual Conference.

Media Coverage

- News4 San Antonio: *Smart grids: the next target for cyber-terrorists?*
- UTSA Today: *NSF grant to create smart buildings that talk to smart grids.*
- San Antonio Business Journal: *Vulnerability of electrical grid to cyber attack.*

Referees

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