Kaarthik Sundar

Curriculum Vitae

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Education & Qualifications

2016 **Ph.D.**, Mechanical Engineering, Texas A&M University
Advisor: Sivakumar Rathinam
Thesis: *Algorithms for Routing Unmanned Vehicles with Motion, Resource, & Communication Constraints*
GPA: 4.0/4.0
Area of study: Dynamics, Optimization, and Control

2012 **M.S.**, Electrical Engineering, Texas A&M University
Advisors: Shankar P. Bhattacharyya & Sivakumar Rathinam
Thesis: *Motion Planning for Unmanned Aerial Vehicles with Resource Constraints*
GPA: 4.0/4.0
Area of study: Dynamics, Optimization, and Control

2010 **B.E.**, Electrical Engineering, College of Engineering, Guindy, Anna University
Thesis: *Design and Implementation of a PID Controller for an Arc-Cutting Machine*
GPA: 8.91/10.0
Area of study: Control Systems

Professional Experience

August 2018 – current **Staff Scientist - II**, Group: Information Systems and Modeling (A-1),
Los Alamos National Laboratory, Los Alamos, NM.
Other Affiliations: Advanced Network Science Initiative (ANSI)

June 2016 – July 2018 **Post-doctoral Researcher**, Center for Non-Linear Studies (CNLS),
Los Alamos National Laboratory, Los Alamos NM.
Other Affiliations: Advanced Network Science Initiative (ANSI)

May – June 2015 **Graduate Student Research Intern**, Center for Non-Linear Studies (CNLS),
Los Alamos National Laboratory, Los Alamos NM.
Mentor: Dr. Russell W. Bent

May – June 2013 **Algorithms and Software Development Intern**, Network optimization team,
US AutoLogistics LLC, Houston TX.

2010 – 2016 **Graduate Research Assistant**,
Autonomous Systems Laboratory,
Department of Mechanical Engineering, Texas A&M University.

Research Interests

- Autonomous Systems: Motion planning for unmanned/autonomous aerial and underwater vehicles, GPS-denied routing and cooperative localization
- Energy Systems: Renewable integration into power and natural gas grids, joint operation of power and natural gas grids, reduced order modeling of natural gas transients
- Optimization Algorithms: Global optimization for mixed-integer nonlinear programs, combinatorial optimization, distributed algorithms for optimization problems on graphs
- Optimal Control: Surrogate models and fast algorithms for non-linear optimal control problems

Awards & Honors

2020 LANL LDRD Early Career Award – "Distributed Algorithms for Large-Scale PDE/ODE-Constrained Optimization Problems on Graphs"
2019 R&D 100 Award Winner for "Severe Contingency Solver for Electric Power Transmission Analysis"
2019 Distinguished Performance Award, Los Alamos National Laboratory
2017 Graduate Teaching Academy Award, Texas A&M University
2015 Graduate Student Travel Award, Department of Mechanical Engineering, Texas A&M University

Funding

Project Title	Duration	Role	Amount (USD)
Fast, Linear Programming-Based Algorithms with Solution Quality Guarantees for Nonlinear Optimal Control Problems	2022 – 2025	PI	975,000
Resilient Operation of Interdependent Engineered Networks and Natural Systems	2022 – 2025	co-PI	975,000
Fuel Reliability for Electric Energy Delivery by Optimized Management of Gas-pipeline Automation Systems - FREEDOM GAS	2020 – 2021	co-PI	700,000
Distributed Algorithms for Large-Scale PDE/ODE-Constrained Optimization Problems on Graphs (Early Career)	2020 – 2022	PI	440,000
Dynamical Modeling, Estimation, and Optimal Control of Electrical Grid-Natural Gas Transmission Systems	2019 – 2021	co-PI	2,000,000

Graduate Student Advising

- **Sohum Misra**: University of Cincinnati, Doctoral thesis committee member.
  Thesis title: Motion planning for unmanned vehicles in GPS-denied environments.

Mentoring at Los Alamos National Laboratory:

UT-Dallas Capstone Project: August 2019–January 2020, Active shooter encirclement using a fleet of semi-autonomous drones. Team: 5 senior undergrad students from Electrical Engineering and Computer Science Departments.

Graduate student interns:

Name	Year	Research Topic
Christopher Montez	2022	Global optimization for Nonlinear Programs (NLPs) with trigonometric functions
Christopher Montez	2021	Sensitivity analysis for Mixed-Integer Linear Programs
Sudarshan Rajan	2020	An ADMM approach to solving steady state natural gas optimization problems
Sungho Shin	2020	Graph-based modeling and decomposition of energy infrastructures
Ignacio Losada Carreño	2019	An adversarial model for attack vector vulnerability analysis on power and gas delivery operations
Mareldi Ahumada-Paras	2019	N-k contingency analysis for natural gas networks

Post-doctoral Researchers:

Name	Duration	Research Topic
Saif R. Kazi	2021–current	Blending hydrogen in natural gas pipelines
Sai K. K. Hari	2019–current	Optimization of natural gas pipeline operations
Fuyu Hu	2019–2021	Natural gas demand response
Elena Khlebnikova	2019–2021	Optimization of petroleum pipeline operations

Research Mentoring at Texas A&M University:

Name	Degree	Research Topic
Sudarshan Rajan	Ph.D. 2020	Algorithms for multi-drone patrolling missions
Bingyu Wang	Ph.D. 2020	Cooperative localization for multiple drones in GPS-denied environments
Sai K. K. Hari	M.S. 2016	Vehicle localization using range measurements
Jiangli Qin	M.S. 2016	Algorithms for constellation scheduling problem
David Levy	M.S. 2013	Multiple vehicle routing problem with fuel constraints

Teaching Experience

August 2017 **Short course in Optimization for Power Systems**, University of Central Florida, Orlando, Florida.
Taught a two-lecture series in "Stochastic Optimization for Power Systems in the Presence of Renewables" and "Convex relaxations of Non-Linear Optimization Problems in Power Systems" as a part of a course on "Distributed Control and Optimization for Smart Grids".

Spring 2016 **Recipient of the Graduate Teaching Academy Award**, Texas A&M University, College Station, Texas
The award allowed me to teach a senior level undergraduate course in "Advanced Dynamics and Control" (MEEN 431) during Spring 2016.

Spring 2015 **Graduate teaching assistant** for a senior level undergraduate course in "Advanced Dynamics and Control" at the Dept. of Mechanical Engg. Job duties included setting homework problems and solutions, grading exams, and holding office hours.

Fall 2014 **Teaching assistant** for "Dynamics and Control Systems", an undergraduate course in the Dept. of Mechanical Engg. I was responsible for teaching two three-hour lab sessions each week, conducting lab quizzes, and grading.

Publications

Peer-Reviewed Journal Articles

[J30] **K. Sundar**, S. Sanjeevi & C. Montez. (2022). A Branch-and-Price Algorithm for a Team Orienteering Problem with Fixed-Wing Drones. *EURO Journal on Transportation and Logistics*. DOI: 10.1016/j.ejtl.2021.100070. arXiv: 1912.04353.

[J29] G. V. Wald, **K. Sundar**, E. Sherwin, A. Zlotnik & A. Brandt. (2022). Optimal Gas-Electric Energy System Decarbonization Planning. *Advances in Applied Energy*. DOI: 10.1016/j.adapen.2022.100086.

[J28] S. Rajan, **K. Sundar** & N. Gautam. (2022). Routing Problem for Unmanned Aerial Vehicle Patrolling Missions - A Progressive Hedging Algorithm. *Computers & Operations Research*. DOI: 10.1016/j.cor.2022.105702. arXiv: 2106.08379.

[J27] M. Ahumada-Paras, **K. Sundar**, R. Bent & A. Zlotnik. (2021). N-k Interdiction Modeling for Natural Gas Networks. *Electric Power Systems Research*. DOI: 10.1016/j.epsr.2020.106725.

[J26] **K. Sundar**, H. Nagarajan, J. Linderoth, S. Wang & R. Bent. (2021). Piecewise Polyhedral Formulations for a Multilinear Term. *Operations Research Letters*. DOI: 10.1016/j.orl.2020.12.002. arXiv: 2001.00514.

[J25] **K. Sundar**, S. Misra, R. Bent & F. Pan. (2021). Credible Interdiction for Transmission Systems. *IEEE Transactions on Control of Network Systems*. DOI: 10.1109/tcns.2021.3050128. arXiv: 1904.08330.

[J24] F. Hu, **K. Sundar**, S. Srinivasan & R. Bent. (2021). Demand Response Analogues for Residential Loads in Natural Gas Networks. *IEEE Access*. DOI: 10.1109/ACCESS.2021.3132614. arXiv: 2104.03269.

[J23] S. K. K. Hari, **K. Sundar**, S. Srinivasan, A. Zlotnik & R. Bent. (2021). Operation of Natural Gas Pipeline Networks With Storage Under Transient Flow Conditions. *IEEE Transactions on Control Systems Technology*. DOI: 10.1109/TCST.2021.3071316. arXiv: 2103.02493.

[J22] E. Khlebnikova, **K. Sundar**, A. Zlotnik, R. Bent, M. Ewers & B. Tasseff. (2021). Optimal Economic Operation of Liquid Petroleum Products Pipeline Systems. *AIChE Journal*. DOI: 10.1002/aic.17124.

[J21] **K. Sundar**, S. Sanjeevi & H. Nagarajan. (2021). Sequence of Polyhedral Relaxations for Nonlinear Univariate Functions. *Optimization and Engineering*. DOI: 10.1007/s11081-021-09609-z. arXiv: 2005.13445.

[J20] I. L. Carreño, A. Scaglione, A. Zlotnik, D. Deka & **K. Sundar**. (2020). An Adversarial Model for Attack Vector Vulnerability Analysis on Power and Gas Delivery Operations. *Electric Power Systems Research*. DOI: 10.1016/j.epsr.2020.106777. arXiv: 1910.03662.

[J19] S. Gopinath, H. L. Hijazi, T. Weisser, H. Nagarajan, M. Yetkin, **K. Sundar** & R. W. Bent. (2020). Proving Global Optimality of ACOPF Solutions. *Electric Power Systems Research*. DOI: 10.1016/j.epsr.2020.106688. arXiv: 1910.03716.

[J18] S. G. Manyam, **K. Sundar** & D. W. Casbeer. (2020). Cooperative Routing for an Air-Ground Vehicle Team–Exact Algorithm, Transformation Method, and Heuristics. *IEEE Transactions on Automation Science and Engineering*. DOI: 10.1109/TASE.2019.2931894. arXiv: 1804.09546.

[J17] L. A. Roald, **K. Sundar**, A. Zlotnik, S. Misra & G. Andersson. (2020). An Uncertainty Management Framework for Integrated Gas-Electric Energy Systems. *Proceedings of the IEEE*. DOI: 10.1109/JPROC.2020.3005505. arXiv: 2006.14561.

[J16] P. Maini, **K. Sundar**, M. Singh, S. Rathinam & P. Sujit. (2019). Cooperative Aerial-Ground Vehicle Route Planning With Fuel Constraints for Coverage Applications. *IEEE Transactions on Aerospace and Electronic Systems*. DOI: 10.1109/taes.2019.2917578.

[J15] **K. Sundar**, H. Nagarajan, L. Roald, S. Misra, R. Bent & D. Bienstock. (2019). Chance-Constrained Unit Commitment With N-1 Security and Wind Uncertainty. *IEEE Transactions on Control of Network Systems*. DOI: 10.1109/TCNS.2019.2919210. arXiv: 1703.05206.

[J14] **K. Sundar** & A. Zlotnik. (2019). State and Parameter Estimation for Natural Gas Pipeline Networks Using Transient State Data. *IEEE Transactions on Control Systems Technology*. DOI: 10.1109/TCST.2018.2851507. arXiv: 1803.07156.

[J13] **K. Sundar**, S. Rathinam & R. Sharma. (2019). Path Planning for Unmanned Vehicles with Localization Constraints. *Optimization Letters*. DOI: 10.1007/s11590-019-01435-8.

[J12] C. Coffrin, R. Bent, B. Tasseff, **K. Sundar** & S. Backhaus. (2019). Relaxations of AC Maximal Load Delivery for Severe Contingency Analysis. *IEEE Transactions on Power Systems*. DOI: 10.1109/TPWRS.2018.2876507. arXiv: 1710.07861.

[J11] H. Nagarajan, M. Lu, S. Wang, R. Bent & **K. Sundar**. (2019). An Adaptive, Multivariate Partitioning Algorithm for Global Optimization of Nonconvex Programs. *Journal of Global Optimization*. DOI: 10.1007/s10898-018-00734-1. arXiv: 1707.02514.

[J10] S. Misra, B. Wang, **K. Sundar**, R. Sharma & S. Rathinam. (2019). Single Vehicle Localization and Routing in GPS-Denied Environments Using Range-Only Measurements. *IEEE Access*. DOI: 10.1109/ACCESS.2019.2963286.

[J9] S. Venkatachalam, **K. Sundar** & S. Rathinam. (2018). A Two-Stage Approach for Routing Multiple Unmanned Aerial Vehicles with Stochastic Fuel Consumption. *Sensors*. DOI: 10.3390/s18113756. arXiv: 1711.04936.

[J8] **K. Sundar**, C. Coffrin, H. Nagarajan & R. Bent. (2018). Probabilistic N-k Failure-Identification for Power Systems. *Networks*. DOI: 10.1002/net.21806. arXiv: 1704.05391.

[J7] **K. Sundar**, S. Venkatachalam & S. Rathinam. (2017). Analysis of Mixed-Integer Linear Programming Formulations for a Fuel-Constrained Multiple Vehicle Routing Problem. *Unmanned Systems*. DOI: 10.1142/S2301385017500091. arXiv: 1604.08464.

[J6] **K. Sundar** & S. Rathinam. (2017). Algorithms for Heterogeneous, Multiple Depot, Multiple Unmanned Vehicle Path Planning Problems. *Journal of Intelligent & Robotic Systems*. DOI: 10.1007/s10846-016-0458-5.

[J5] **K. Sundar** & S. Rathinam. (2017). Multiple Depot Ring Star Problem: a Polyhedral Study and an Exact Algorithm. *Journal of Global Optimization*. DOI: 10.1007/s10898-016-0431-7. arXiv: 1407.5080.

[J4] **K. Sundar** & S. Rathinam. (2016). Generalized Multiple Depot Traveling Salesmen Problem–Polyhedral Study and Exact Algorithm. *Computers & Operations Research*. DOI: 10.1016/j.cor.2015.12.014. arXiv: 1508.01813.

[J3] **K. Sundar** & S. Rathinam. (2014). Algorithms for Routing an Unmanned Aerial Vehicle in the Presence of Refueling Depots. *IEEE Transactions on Automation Science and Engineering*. DOI: 10.1109/TASE.2013.2279544. arXiv: 1304.0494.

[J2] D. Levy, **K. Sundar** & S. Rathinam. (2014). Heuristics for Routing Heterogeneous Unmanned Vehicles with Fuel Constraints. *Mathematical Problems in Engineering*. DOI: 10.1155/2014/131450.

[J1] **K. Sundar** & S. Rathinam. (2013). A Primal-Dual Heuristic for a Heterogeneous Unmanned Vehicle Path Planning Problem. *International Journal of Advanced Robotic Systems*. DOI: 10.5772/56486.

In Conference Proceedings

[C28] **K. Sundar**, S. Misra, A. Zlotnik & R. Bent. (2021). Robust Gas Pipeline Network Expansion Planning to Support Power System Reliability. In: *American Control Conference (ACC)*. DOI: 10.23919/ACC50511.2021.9483249. arXiv: 2101.10398.

[C27] I. L. Carreño, A. Scaglione, A. Giacomoni, **K. Sundar**, D. Deka & A. Zlotnik. (2021). Using Transient Pipeline Simulation to Evaluate Electric Power Generation Reliability. In: *PSIG Annual Meeting*. Pipeline Simulation Interest Group. URL: https://onepetro.org/PSIGAM/proceedings-pdf/PSIG21/All-PSIG21/PSIG-2119/2444843/psig-2119.pdf.

[C26] S. Shin, C. Coffrin, **K. Sundar** & V. M. Zavala. (2021). Graph-Based Modeling and Decomposition of Energy Infrastructures. *IFAC-PapersOnLine*. 16th IFAC Symposium on Advanced Control of Chemical Processes (ADCHEM). DOI: 10.1016/j.ifacol.2021.08.322. arXiv: 2010.02404.

[C25] E. Khlebnikova, A. Zlotnik, **K. Sundar**, M. Ewers, B. Tasseff & R. Bent. (2020). Optimization of Liquid Pipeline Control for Economic and Efficient Operations. In: *SPE Europec featured at 82nd EAGE Conference and Exhibition*. Society of Petroleum Engineers. DOI: 10.2118/200653-MS.

[C24] S. Rathinam, R. Ravi, J. Bae & **K. Sundar**. (2020). Primal-Dual 2-Approximation Algorithm for the Monotonic Multiple Depot Heterogeneous Traveling Salesman Problem. In: *17th Scandinavian Symposium and Workshops on Algorithm Theory (SWAT)*. Ed. by S. Albers. Leibniz International Proceedings in Informatics (LIPIcs). Schloss Dagstuhl–Leibniz-Zentrum für Informatik. DOI: 10.4230/LIPIcs.SWAT.2020.33.

[C23] **K. Sundar**, S. G. Manyam, P. Sujit & D. W. Casbeer. (2019). Coordinated Air-Ground Vehicle Routing with Timing Constraints. In: *6th Indian Control Conference (ICC)*. IEEE. DOI: 10.1109/ICC47138.2019.9123228.

[C22] A. Zlotnik, **K. Sundar**, A. M. Rudkevich, A. Beylin & X. Li. (2019). Optimal Control for Scheduling and Pricing Intra-day Natural Gas Transport on Pipeline Networks. In: *IEEE 58th Conference on Decision and Control (CDC)*. IEEE. DOI: 10.1109/cdc40024.2019.9030009. arXiv: 1912.02895.

[C21] **K. Sundar** & A. Zlotnik. (2019). Dynamic State and Parameter Estimation for Natural Gas Networks Using Real Pipeline System Data. In: *IEEE Conference on Control Technology and Applications (CCTA)*. DOI: 10.1109/CCTA.2019.8920430. arXiv: 1912.05644.

[C20] **K. Sundar**, M. Vallem, R. Bent, N. Samaan, B. Vyakaranam & Y. Makarov. (2019). N-k Failure Analysis Algorithm for Identification of Extreme Events for Cascading Outage Pre-screening process. In: *IEEE Power & Energy Society General Meeting (PESGM)*. IEEE. DOI: 10.1109/pesgm40551.2019.8973425.

[C19] S. Rajan, **K. Sundar** & N. Gautam. (2019). Routing Problems for Reconnaissance Patrolling Missions. In: *International Conference on Unmanned Aircraft Systems (ICUAS)*. IEEE. DOI: 10.1109/ICUAS.2019.8797712.

[C18] A. Zlotnik, **K. Sundar**, A. M. Rudkevich, R. Tabors & X. Li. (2019). Pipeline Transient Optimization for a Gas-Electric Coordination Decision Support System. In: *PSIG Annual Meeting*. Pipeline Simulation Interest Group. URL: https://onepetro.org/PSIGAM/proceedings-pdf/PSIG19/All-PSIG19/PSIG-1919/1130167/psig-1919.pdf.

[C17] H. Nagarajan, **K. Sundar**, H. Hijazi & R. Bent. (2019). Convex Hull Formulations for Mixed-Integer Multilinear Functions. In: *AIP Conference Proceedings*. AIP Publishing. DOI: 10.1063/1.5090004. arXiv: 1807.11007.

[C16] S. K. K. Hari, **K. Sundar**, H. Nagarajan, R. Bent & S. Backhaus. (2018). Hierarchical Predictive Control Algorithms for Optimal Design and Operation of Microgrids. In: *Power Systems Computation Conference (PSCC)*. DOI: 10.23919/PSCC.2018.8442977. arXiv: 1803.06705.

[C15] **K. Sundar**, S. Srinivasan, S. Misra, S. Rathinam & R. Sharma. (2018). Landmark Placement for Localization in a GPS-Denied Environment. In: *Annual American Control Conference (ACC)*. IEEE. DOI: 10.23919/ACC.2018.8431886. arXiv: 1802.07652.

[C14] C. Coffrin, R. Bent, **K. Sundar**, Y. Ng & M. Lubin. (2018). PowerModels.jl: An Open-Source Framework for Exploring Power Flow Formulations. In: *Power Systems Computation Conference (PSCC)*. DOI: 10.23919/PSCC.2018.8442948. arXiv: 1711.01728.

[C13] B. Wang, S. Rathinam, R. Sharma & **K. Sundar**. (2018). Algorithms for Localization and Routing of Unmanned Vehicles in GPS-Denied Environments. In: *ASME Dynamic Systems and Control Conference (DSCC)*. American Society of Mechanical Engineers. DOI: 10.1115/DSCC2018-8949.

[C12] B. Wang, S. Misra, **K. Sundar**, S. Rathinam & R. Sharma. (2018). Routing Multiple Unmanned Vehicles in GPS-Denied Environments. In: *AIAA Information Systems-AIAA Infotech @ Aerospace*, *AIAA SciTech Forum*. DOI: 10.2514/6.2018-0897. arXiv: 1901.00389.

[C11] S. G. Manyam, **K. Sundar** & D. W. Casbeer. (2017). Cooperative Surveillance in the Presence of Time Sensitive Data. In: *IEEE Conference on Control Technology and Applications (CCTA)*. DOI: 10.1109/CCTA.2017.8062486.

[C10] **K. Sundar**, S. Venkatachalam & S. G. Manyam. (2017). Path Planning for Multiple Heterogeneous Unmanned Vehicles with Uncertain Service Times. In: *International Conference on Unmanned Aircraft Systems (ICUAS)*. IEEE. DOI: 10.1109/ICUAS.2017.7991336. arXiv: 1702.07647.

[C9] **K. Sundar**, S. Misra, S. Rathinam & R. Sharma. (2017). Routing Unmanned Vehicles in GPS-Denied Environments. In: *International Conference on Unmanned Aircraft Systems (ICUAS)*. IEEE. DOI: 10.1109/ICUAS.2017.7991488. arXiv: 1708.03269.

[C8] S. K. K. Hari, **K. Sundar**, J. Braga, J. Teixeira, S. Darbha & J. Sousa. (2017). Adaptive Position Estimation for Vehicles Using Range Measurements. *IFAC-PapersOnLine*. 20th IFAC World Congress. DOI: 10.1016/j.ifacol.2017.08.398.

[C7] **K. Sundar**, J. Qin, S. Rathinam, L. Ntaimo, S. Darbha & C. Valicka. (2016). Algorithms for a Satellite Constellation Scheduling Problem. In: *IEEE International Conference on Automation Science and Engineering (CASE)*. DOI: 10.1109/COASE.2016.7743431.

[C6] **K. Sundar**, S. Venkatachalam & S. Rathinam. (2016). Formulations and Algorithms for the Multiple Depot, Fuel-Constrained, Multiple Vehicle Routing Problem. In: *American Control Conference (ACC)*. IEEE. DOI: 10.1109/ACC.2016.7526691. arXiv: 1508.05968.

[C5] S. G. Manyam, D. W. Casbeer & **K. Sundar**. (2016). Path Planning for Cooperative Routing of Air-Ground vehicles. In: *American Control Conference (ACC)*. IEEE. DOI: 10.1109/ACC.2016.7526082. arXiv: 1605.09739.

[C4] S. K. K. Hari, **K. Sundar**, S. Rathinam & S. Darbha. (2016). Scheduling Tasks for Human Operators in Monitoring and Surveillance Applications. *IFAC-PapersOnLine*. Cyber-Physical & Human-Systems (CPHS). DOI: 10.1016/j.ifacol.2016.12.189.

[C3] **K. Sundar**, H. Nagarajan, M. Lubin, L. Roald, S. Misra, R. Bent & D. Beinstock. (2016). Unit Commitment with N-1 Security and Wind Uncertainty. In: *Power Systems Computation Conference (PSCC)*. DOI: 10.1109/PSCC.2016.7540910. arXiv: 1602.00079.

[C2] **K. Sundar** & S. Rathinam. (2015). An Exact Algorithm for a Heterogeneous, Multiple Depot, Multiple Traveling Salesman Problem. In: *International Conference on Unmanned Aircraft Systems (ICUAS)*. IEEE. DOI: 10.1109/ICUAS.2015.7152311.

[C1] **K. Sundar** & S. Rathinam. (2012). Route Planning Algorithms for Unmanned Aerial Vehicles with Refueling Constraints. In: *American Control Conference (ACC)*. IEEE. DOI: 10.1109/ACC.2012.6315620.

Preprints

[P6] S. Srinivasan, **K. Sundar**, V. Gyrya & A. Zlotnik. (2022). Numerical Solution of the Steady-State Network Flow Equations for a Non-Ideal Gas. arXiv: 2204.00071.

[P5] S. Misra, **K. Sundar**, R. Sharma & K. Brink. (2021). Deployable, Data-Driven Unmanned Vehicle Navigation System in GPS-Denied, Feature-Deficient Environments. arXiv: 2101.09750.

[P4] B. Tasseff, C. Coffrin, R. Bent, **K. Sundar** & A. Zlotnik. (2020). Natural Gas Maximal Load Delivery for Multi-contingency Analysis. arXiv: 2009.14726.

[P3] **K. Sundar**, H. Nagarajan, S. Misra, M. Lu, C. Coffrin & R. Bent. (2018). Optimization-Based Bound Tightening Using a Strengthened QC-Relaxation of the Optimal Power Flow Problem. arXiv: 1809.04565.

[P2] S. K. K. Hari, **K. Sundar**, J. Braga, J. Teixeira, J. Sousa & S. Darbha. (2018). Estimation of Location and Orientation for Underwater Vehicles from Range Measurements. arXiv: 1808.03198.

[P1] S. Venkatachalam & **K. Sundar**. (2016). Branch-and-Price Algorithm for an Auto-Carrier Transportation Problem. arXiv: 1605.09030.

Professional Activities & Affiliations

Referee Service	IEEE Transactions on Systems, Man, and Cybernetics; Transportation Research Part E: Logistics & Transportation Review; IEEE Transactions on Automation Science & Engineering; IEEE Transactions on Intelligent Vehicles; IEEE Access; Journal of Intelligent & Robotic Systems; Journal of Computational Science; IIE Transactions; IEEE Transactions on Sustainable Energy; IEEE Transactions on Power Systems; International Journal of Production Research; Sensors; Computers & Operations Research; Journal of Global Optimization; IEEE Transactions on Smart Grid; Electric Power Systems Research; Applied Energy; INFORMS Journal on Computing
	IEEE Conference on Automation Science and Engineering (CASE); International Conference on Robotics and Automation (ICRA); International Conference on Unmanned Aerial Systems (ICUAS); Indian Control Conference (ICC); Control & Decision Conference (CDC); American Control Conference (ACC); ASME Dynamic Systems and Control Conference (DSCC); Power Systems Computation Conferences (PSCC)
Affiliations	ASME, AIAA, IEEE, INFORMS
	SIAM, Activity Groups: Control & Systems Theory, Optimization

Programming Skills

Languages	c, c++, python, java, javascript, julia, kotlin
Libraries	CPLEX, Gurobi, boost libraries for c++, networkx (python graph library)
Softwares	LabView, MATLAB

References

Available upon request