Kaarthik Sundar
Curriculum Vitae

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Education & Qualifications

2016   **Ph.D.** Mechanical Engineering, Texas A&M University

2012   **M.S.** Electrical Engineering, Texas A&M University

2010   **B.E.** Electrical Engineering, College of Engineering, Guindy, Anna University

Professional Experience

April 2023 – current   **Staff Scientist - III**, Group: Information Systems and Modeling (A-1),
Los Alamos National Laboratory, Los Alamos, NM.

August 2018 – March 2023   **Staff Scientist - II**, Group: Information Systems and Modeling (A-1),
Los Alamos National Laboratory, Los Alamos, NM.

June 2016 – July 2018   **Post-doctoral Researcher**, Center for Non-Linear Studies (CNLS),
Los Alamos National Laboratory, Los Alamos NM.

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

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

Theory

✦ Mathematical programming, global optimization algorithms, approximation algorithms, and heuristics

✦ Numerical methods for nonlinear optimal control problems

✦ Uncertainty quantification and rare event likelihood estimation

✦ Reinforcement learning

Application Domains

✦ Pipeline infrastructure systems, interdependent energy infrastructure systems, decarbonization planning

✦ Transportation systems, robotics, mission planning

✦ Supply chain systems

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

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

Mentoring at Los Alamos National Laboratory:

Graduate student interns:

Year	Name	Research Topic
2023	Abhay Singh Bhadoriya	Quantifying safety in automated highway systems
2023	Venkata Sirimuvva Chirala	A reinforcement learning approach for container shipping supply chain problem
2022	Mo Sodwatana	Economics of blending hydrogen and natural gas in pipeline networks
2022	Yuqi Zhou	Power systems topology control under wildfire
2022	Christopher Montez	Global optimization for Nonlinear Programs (NLPs) with trigonometric functions
2021	Christopher Montez	Sensitivity analysis for Mixed-Integer Linear Programs
2020	Sudarshan Rajan	An ADMM approach to solving steady state natural gas optimization problems
2020	Sungho Shin	Graph-based modeling and decomposition of energy infrastructures
2019	Ignacio Losada Carreño	An adversarial model for attack vector vulnerability analysis on power and gas delivery operations
2019	Mareldi Ahumada-Paras	N-k contingency analysis for natural gas networks

Post-doctoral Researchers:

Year	Name	Research Topic
2021–current	Saif R. Kazi	Blending hydrogen in natural gas pipelines
2019–2022	Sai K. K. Hari	Optimization of natural gas pipeline operations
2019–2021	Fuyu Hu	Natural gas demand response
2019–2021	Elena Khlebnikova	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

Graduate Student Advising

✦ **Venkata Sirimuvva Chirala**: Wayne State University, Doctoral thesis committee member.
Thesis title: Novel data-driven algorithms for autonomous vehicle path planning problems during planning and evaluation stages.

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

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

Authors annotated with † are students and those with ‡ are post-docs

Peer-Reviewed Journal Articles

[J34] V. S. Chirala†, **K. Sundar**, S. Venkatachalam, J. M. Smereka & S. Kassoumeh. (2023). Heuristics for Multi-Vehicle Routing Problem Considering Human-Robot Interactions. *IEEE Transactions on Intelligent Vehicles*. DOI: 10.1109/TIV.2023.3261274. arXiv: 2208.09607.

[J33] S. Misra†, **K. Sundar**, R. Sharma & K. Brink. (2022). Deployable, Data-Driven Unmanned Vehicle Navigation System in GPS-Denied, Feature-Deficient Environments. *Journal of Intelligent & Robotic Systems*. DOI: 10.1007/s10846-022-01647-8. arXiv: 2101.09750.

[J32] 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.

[J31] S. Srinivasan, **K. Sundar**, V. Gyrya & A. Zlotnik. (2022). Numerical Solution of the Steady-State Network Flow Equations for a Non-Ideal Gas. *IEEE Transactions on Control of Network Systems*. DOI: 10.1109/TCNS.2022.3232524. arXiv: 2204.00071.

[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] **K. Sundar**, S. Sanjeevi & H. Nagarajan. (2022). Sequence of Polyhedral Relaxations for Nonlinear Univariate Functions. *Optimization and Engineering*. DOI: 10.1007/s11081-021-09609-z. arXiv: 2005.13445.

[J28] B. Tasseff, C. Coffrin, R. Bent, **K. Sundar** & A. Zlotnik. (2022). Natural Gas Maximal Load Delivery for Multi-contingency Analysis. *Computers & Chemical Engineering*. DOI: 10.1016/j.compchemeng.2022.108032. arXiv: 2009.14726.

[J27] 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.

[J26] 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.

[J25] 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.

[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] 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.

[J22] **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.

[J21] **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.

[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] 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.

[J15] 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.

[J14] 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.

[J13] 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.

[J12] **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.

[J11] **K. Sundar**, S. Rathinam & R. Sharma. (2019). Path Planning for Unmanned Vehicles with Localization Constraints. *Optimization Letters*. DOI: 10.1007/s11590-019-01435-8.

[J10] **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.

[J9] **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.

[J8] 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.

[J7] **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.

[J6]   **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.

[J5]   **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.

[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]   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.

[J2]   **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.

[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]   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.

[C27]   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.

[C26]   **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.

[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]   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.

[C22]   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.

[C21]   **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.

[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]   **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.

[C18]   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.

[C17] 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.

[C16] 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.

[C15] 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.

[C14] **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.

[C13] 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.

[C12] 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.

[C11] 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.

[C10] 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.

[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]   **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.

[C7]   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.

[C6]   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.

[C5]   **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.

[C4]   **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.

[C3]   **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.

[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

[P7] S. R. Kazi[‡], **K. Sundar** & A. Zlotnik. (2023). Dynamic Optimization and Optimal Control of Hydrogen Blending Operations in Natural Gas Networks. arXiv: 2304.02716.

[P6] Y. Zhou[†], **K. Sundar**, D. Deka & H. Zhu. (2023). Optimal Power System Topology Control Under Uncertain Wildfire Risk. arXiv: 2303.07558.

[P5] S. R. Kazi[‡], **K. Sundar**, S. Srinivasan & A. Zlotnik. (2022). Modeling and Optimization of Steady Flow of Natural Gas and Hydrogen Mixtures in Pipeline Networks. arXiv: 2212.00961.

[P4] M. Sodwatana[†], S. R. Kazi, **K. Sundar** & A. Zlotnik. (2022). Optimization of Hydrogen Blending in Natural Gas Networks for Carbon Emissions Reduction. arXiv: 2210.16385.

[P3] 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.

[P2] **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.

[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 Transactions on Sustainable Energy

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   INFORMS, IEEE, ASME, AIAA

SIAM, Activity Groups: Control & Systems Theory, Optimization

References

Available upon request