

# 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

- Applications** Safe, Efficient, Equitable, and Resilient (SEER) Operations and Decarbonization Planning for Infrastructure Systems; Mission Planning for Autonomous Systems  
**Methodology** Mathematical Programming, Numerical Methods for Nonlinear Optimal Control Problems, Distributed Algorithms, Uncertainty Quantification, Reinforcement Learning, Reduced-Order Modeling, Gaussian Process

## 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  |
|-------------|-------|--------------|--|
| 2024 – 2026 | co-I  | 500,000      | Climate-Resilient Equitable Resource Planning  |
| 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   |
|------|---------------------------|--|
| 2024 | Abhay Singh Bhadoriya     | Fair multiple traveling salesmen problem   |
| 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 <sup>†</sup> are students and those with <sup>‡</sup> are post-docs

### Peer-Reviewed Journal Articles

- [J35] S. R. Kazi<sup>‡</sup>, **K. Sundar**, S. Srinivasan & A. Zlotnik. (2024). Modeling and Optimization of Steady Flow of Natural Gas and Hydrogen Mixtures in Pipeline Networks. *International Journal of Hydrogen Energy*. doi: 10.1016/j.ijhydene.2023.12.054. arXiv: 2212.00961.
- [J34] V. S. Chirala<sup>†</sup>, **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. Srinivasan, **K. Sundar**, V. Gyrya & A. Zlotnik. (2023). 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.
- [J32] S. Misra<sup>†</sup>, **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.
- [J31] S. Rajan<sup>†</sup>, **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.
- [J30] **K. Sundar**, S. Sanjeevi & C. Montez<sup>†</sup>. (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<sup>†</sup>, **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<sup>†</sup>, **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<sup>‡</sup>, **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<sup>‡</sup>, **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/tcms.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<sup>†</sup>, 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<sup>†</sup>, 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<sup>†</sup>, **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

- [C31] M. Sodwatana<sup>†</sup>, S. R. Kazi<sup>‡</sup>, **K. Sundar** & A. Zlotnik. (2023). Optimization of Hydrogen Blending in Natural Gas Networks for Carbon Emissions Reduction. doi: 10.23919/ACC55779.2023.10156202. arXiv: 2210.16385.
- [C30] **K. Sundar**, H. Nagarajan, S. Misra, M. Lu, C. Coffrin & R. Bent. (2023). Optimization-Based Bound Tightening Using a Strengthened QC-Relaxation of the Optimal Power Flow Problem. In: *IEEE 62th Conference on Decision and Control (CDC)*. IEEE. doi: 10.1109/CDC49753.2023.10384116. arXiv: 1809.04565.
- [C29] A. Zlotnik, S. R. Kazi<sup>‡</sup>, **K. Sundar**, V. Gyrya, L. Baker, M. Sodwatana<sup>†</sup> & Y. Brodskyi. (2023). Effects of Hydrogen Blending on Natural Gas Pipeline Transients, Capacity, and Economics. In: *PSIG Annual Meeting*. Pipeline Simulation Interest Group. URL: <https://onepetro.org/PSIGAM/proceedings-pdf/PSIG23/All-PSIG23/PSIG-2312/3115333/psig-2312.pdf>.
- [C28] I. L. Carreño<sup>†</sup>, 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<sup>†</sup>, 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<sup>‡</sup>, 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<sup>†</sup>, **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<sup>†</sup>, **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<sup>†</sup>, 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<sup>†</sup>, **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<sup>†</sup>, **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<sup>†</sup>, 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<sup>†</sup>, S. Rathinam, L. Ntamo, 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

- [P11] H. Bana, M. Mishra, S. Sarkar, S. Sanjeevi, P. Sujit & **K. Sundar**. (2024). Deep Reinforcement Learning-Based Approach for a Single Vehicle Persistent Surveillance Problem with Fuel Constraints. arXiv: 2404.06423.
- [P10] S. R. Kazi<sup>‡</sup>, S. Misra, S. Tokareva, **K. Sundar** & A. Zlotnik. (2024). Stochastic Finite Volume Method for Uncertainty Management in Gas Pipeline Network Flows. arXiv: 2403.18124.
- [P9] **K. Sundar**, A. Mastin, M. Garcia, R. Bent & J.-P. Watson. (2024). Exact and Heuristic Approaches for the Stochastic N-k Interdiction in Power Grids. arXiv: 2402.00217.
- [P8] S. K. K. Hari, **K. Sundar**, S. Srinivasan & R. Bent. (2023). Relaxations of the Steady Optimal Gas Flow Problem for a Non-Ideal Gas. arXiv: 2308.13009.
- [P7] S. R. Kazi<sup>‡</sup>, **K. Sundar** & A. Zlotnik. (2023). Dynamic Optimization and Optimal Control of Hydrogen Blending Operations in Natural Gas Networks. arXiv: 2304.02716.
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Professional Activities & Affiliations

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