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 Energy Infrastructure Systems; Autonomous Systems

Methodology Control Theory, Mathematical Programming, Numerical Methods for Nonlinear Optimal Control Problems, Distributed Algorithms, Uncertainty Quantification, 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
2025-2028	co-PI	1,200,000	Prediction of Rare Event Likelihood In Dynamical Systems With Constraints Using Flow Based AI
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

Duration	Role	Amount (USD)	Project Title
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	Aparna Kishore	Fair budget allocation for solar retrofitting programs
2024	Allen George Philip	Algorithms for shortest path on Graph of Convex Sets (GCS)
2024	Vincenzo Di Vito	Gaussian process regression for small signal stability in electric transmission systems
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
2024–current	Abhay Singh Bhadoriya	Bayesian surrogates for energy infrastucture optimization
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

[J40] S. K. K. Hari, A. Zlotnik, S. Srinivasan, **K. Sundar** & M. Ewers. (2025). Optimization of District Heating Network Parameters in Steady-State Operation. *Journal of Thermal Science and Engineering Applications*. DOI: 10.1115/1.4066908. arXiv: 2404.18868.

[J39] S. Srinivasan & **K. Sundar**. (2025). Hierarchical Network Partitioning for Solution of Potential-Driven, Steady-State Nonlinear Network Flow Equations. *IEEE Control Systems Letters*. DOI: 10.1109/LCSYS.2025.3533383. arXiv: 2410.19850.

[J38] S. R. Kazi‡, **K. Sundar**, S. Misra, S. Tokareva & A. Zlotnik. (2024). Intertemporal Uncertainty Management in Gas-Electric Energy Systems Using Stochastic Finite Volumes. *Electric Power Systems Research*. DOI: 10.1016/j.epsr.2024.110748.

[J37] S. R. Kazi‡, **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.

[J36] M. Sodwatana†, S. R. Kazi‡, **K. Sundar**, A. Brandt & A. Zlotnik. (2024). Locational Marginal Pricing of Energy in Pipeline Transport of Natural Gas and Hydrogen with Carbon Offset Incentives. *International Journal of Hydrogen Energy*. DOI: 10.1016/j.ijhydene.2024.11.191. arXiv: 2310.13181.

[J35] S. Srinivasan, N. Panda & **K. Sundar**. (2024). On the Existence of Steady-State Solutions to the Equations Governing Fluid Flow in Networks. *IEEE Control Systems Letters*. DOI: 10.1109/LCSYS.2024.3394317. arXiv: 2309.04494.

[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. 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†, **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†, **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[†]. (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

[C35] S. R. Kazi[‡], **K. Sundar** & A. Zlotnik. (2024). Dynamic Optimization and Optimal Control of Hydrogen Blending Operations in Natural Gas Networks. In: *American Control Conference (ACC)*. IEEE. DOI: 10.23919/ACC60939.2024.10644751. arXiv: 2304.02716.

[C34] S. Srinivasan, **K. Sundar**, S. K. K. Hari, A. Zlotnik, A. Pandey, M. Ewers, D. Fobes, A. Mate & R. Bent. (2024). Capabilities and Advantages of the GasModels Package. In: *PSIG Annual Meeting*. Pipeline Simulation Interest Group. URL: https://onepetro.org/PSIGAM/proceedings-pdf/PSIG24/All-PSIG24/PSIG-2414/3408235/psig-2414.pdf.

[C33] **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. DOI: 10.1109/PMAPS61648.2024.10667269. arXiv: 2402.00217.

[C32] Y. Zhou[†], **K. Sundar**, D. Deka & H. Zhu. (2024). Mitigating the Impact of Uncertain Wildfire Risk on Power Grids through Topology Control. In: *18th International Conference on Probabilistic Methods Applied to Power Systems (PMAPS)*. IEEE. DOI: 10.1109/PMAPS61648.2024.10667072. arXiv: 2303.07558.

[C31] M. Sodwatana[†], S. R. Kazi[‡], **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[‡], **K. Sundar**, V. Gyrya, L. Baker, M. Sodwatana[†] & 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[†], 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 Intraday 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.

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Professional Activities & Affiliations

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Affiliations	INFORMS, IEEE, ASME, AIAA SIAM, Activity Groups: Control & Systems Theory, Optimization