References

- [1] J. Keeley, "Fire intensity, fire severity and burn severity: a brief review and suggested usage," *International Journal of Wildland Fire*, vol. 18, pp. 116–126, 2009. [Online]. Available: https://doi.org/10.1071/WF07049
- [2] M. Flannigan, M. A. Krawchuk, W. J. de Groot, M. Wotton, and L. Gowman, "Implications of changing climate for global wildland fire," *International Journal of Wildland Fire*, vol. 18, p. 483–507, 2009.
- [3] M. Flannigan, A. S. Cantin, W. J. de Groot, M. Wotton, A. Newbery, and L. Gowman, "Global wildland fire season severity in the 21st century," *Forest Ecology and Management*, vol. 294, pp. 54–61, 2013.
- [4] A. L. Westerling, "Increasing western us forest wildfire activity: sensitivity to changes in the timing of spring," *Philosophical transactions of the Royal Society of London. Series B, Biological sciences*, vol. 371, no. 1696, 2016. [Online]. Available: https://doi.org/10.1098/rstb.2015.0178
- [5] NIFC. (2021) Fire information statistics. national interagency fire center. Accessed April 21, 2021. [Online]. Available: https://www.nifc.gov/fire-information/statistics
- [6] H. Kramer, M. Mockrin, P. Alexandre, and V. Radeloff, "High wildfire damage in interface communities in california," *International Journal of Wildland Fire*, vol. 28, p. 641–650, 2019. [Online]. Available: https://doi.org/10.1071/WF18108
- [7] V. Radeloff, D. Helmers, H. Kramer, M. Mockrin, P. Alexandre, A. Bar-Massada, V. Butsic, T. J. Hawbaker, S. Martinuzzi, A. Syphard, and S. Stewart, "Rapid growth of the us wildland-urban interface raises wildfire risk," *Proceedings of the National Academy of Sciences*, vol. 115, no. 13, pp. 3314–3319, 2018. [Online]. Available: 10.1073/pnas.1718850115
- [8] R. P. Guyette, F. Thompson, J. Whittier, M. Stambaugh, and D. Dey, "Future fire probability modeling with climate change data and physical chemistry," *Forest Science*, vol. 60, no. 5, p. 862–870, 2014. [Online]. Available: https://doi.org/10.5849/forsci.13-108
- [9] J. L. Case and B. T. Zavodsky, "Evolution of 2016 drought in the southeastern united states from a land surface modeling perspective," *Results in Physics*, vol. 8, p. 654–656, 2018.
- [10] B. van Wilgen, K. Higgins, and D. U. Bellstedt, "The role of vegetation structure and fuel chemistry in excluding fire from forest patches in the fire-prone fynbos shrublands of south africa," *Journal of Ecology*, vol. 78, no. 1, pp. 210–222, 1990.
- [11] J. Madrigal, C. Hernando, M. Guijarro, C. Diez, E. Marino, and A. D. Castro, "Evaluation of forest fuel flammability and combustion properties with an adapted mass loss calorimeter device," *Journal of Fire Sciences*, vol. 27, no. 4, p. 323–342, 2009. [Online]. Available: https://doi.org/10.1177/0734904109102030
- [12] R. de Magalhaes and D. S. DW, "Leaf traits and litter flammability: evidence for non-additive mixture effects in a temperate forest," *Journal of Ecology*, vol. 100, pp. 1153–1163, 2012. [Online]. Available: https://doi.org/10.1111/j.1365-2745.2012.01987.x

- [13] R. Susott, D. Ward, R. Babbitt, D. Latham, L. Weger, and P. Boyd, "Fire dynamics and chemistry of large fires (final report)," U.S. Dep. of Aric., Forest Serives, Missoula, Montana, Tech. Rep. 39, 1990.
- [14] J. Tordesillas, B. T. Lopez, and J. P. How, "Faster: Fast and safe trajectory planner for flights in unknown environments," in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Macau, China, 2019.
- [15] S. G. Benjamin, S. S. Weygandt, J. M. Brown, M. Hu, C. R. Alexander, T. G. Smirnova, J. B. Olson, E. P. James, D. C. Dowell, G. A. Grell, H. Lin, S. E. Peckham, T. L. Smith, W. R. Moninger, J. S. Kenyon, and G. S. Mmanikin, "A north american hourly assimilation and model forecast cycle: The rapid refresh," *Monthly Weather Review*, pp. 1669–1694, 2016.
- [16] M. Dillon, "Wildland fire behavior case studies and analyses: Part ii," United States Department of Agriculture Forest Service, Tech. Rep. 4, 2003.
- [17] F. Donnell, G., N. J., Lannan, and J. Jacob, "Wind characterization using onboard imu of suas (aiaa-2018-2986)," in *AIAA Aviation*, Atlanta, GA, June 2018.
- [18] J. D. Jacob, P. B. Chilson, A. L. Houston, and S. W. Smith, "Considerations for atmospheric measurements with small unmanned aircraft systems," *Atmosphere*, vol. 9, no. 7, 2018.
- [19] R. L. Thorpe, M. McCrink, and J. W. Gregory, "Measurement of unsteady gusts in an urban wind field using a uav-based anemometer," in *AIAA Aviation*, Atlanta, GA, June 2018.
- [20] B. O. Koopman, "Hamiltonian systems and transformation in hilbert space," PNAS, vol. 17, no. 5, pp. 315–318, 1931.
- [21] I. Mezic, "Spectral properties of dynamical systems, model reduction and decompositions," *Nonlinear Dynamics*, vol. 41, no. 1-3, pp. 309–325, 2005.
- [22] —, "Analysis of fluid flows via spectral properties of the koopman operator," Annu. Rev. Fluid Mechanics, vol. 45, pp. 357–378, 2013.
- [23] S. L. Brunton, J. L. Proctor, and N. Kutz, "Discovering governing equations from data by sparse identification of nonlinear dynamical systems," *Proceedings of the National Academy* of Sciences, vol. 113, no. 15, pp. 3932–3937, 2016.
- [24] S. Pan and K. Duraisamy, "Physics-informed probabilistic learning of linear embeddings of nonlinear dynamics with guaranteed stability," SIAM Journal on Applied Dynamical Systems, vol. 19, no. 1, p. 480–509, Jan 2020. [Online]. Available: http://dx.doi.org/10.1137/19M1267246
- [25] C. W. Rowley, I. Mezic, S. Bagheri, P. Schlatter, and D. Henningson, "Spectral analysis of nonlinear flows," J. Fluid Mech., vol. 641, pp. 115–127, 2009.
- [26] J. H. Tu, C. W. Rowley, D. M. Luchtenburg, S. L. Brunton, and J. N. Kutz, "On dynamic mode decomposition: Theory and applications," *Journal of Computational Dynamics*, 2013.
- [27] P. Schmid and A. Sesterhenn, "Dynamic mode decomposition of numerical and experimental data," *Bull. Am. Phys. Soc.*, vol. 53, p. 102, 2008.

- [28] H. Arbabi and I. Mezic, "Ergodic theory, dynamic mode decomposition, and computation of spectral properties of the koopman operator," SIAM Journal on Applied Dynamical Systems, vol. 16, pp. 2096–2126, 2017.
- [29] —, "Study of dynamics in post-transient flows using koopman mode decomposition," *Physical Review Fluids*, vol. 2, pp. 124–402, 2017.
- [30] S. E. Otto and C. W. Rowley, "Linearly recurrent autoencoder networks for learning dynamics," SIAM Journal on Applied Dynamical Systems, vol. 18, pp. 558–593, 2019.
- [31] E. Yeung, S. Kundu, and N. O. Hodas, "Learning deep neural network representations for koopman operators of nonlinear dynamical systems," *Computing Research Repository* (arXiv), vol. abs/1708.06850, 2017.
- [32] J. Rice, W. Xu, and A. August, "Analyzing koopman approaches to physics-informed machine learning for long-term sea-surface temperature forecasting," arXiv, 2020, eprint: 2010.00399, primaryClass: physics.geo-ph.
- [33] N. B. Erichson, M. Muehlebach, and M. W. Mahoney, "Physics-informed autoencoders for lyapunov-stable fluid flow prediction," *arXiv*, 2019, eprint: 1905.10866, primaryClass: physics.comp-ph.
- [34] J. Willard, X. Jia, S. Xu, M. Steinbach, and V. Kumar, "Integrating physics-based modeling with machine learning: A survey," *arXiv*, 2020, eprint: 2003.04919, primaryClass: physics.comp-ph.
- [35] M. Raissi, P. Perdikaris, and G. E. Karniadakis, "Physics informed deep learning (part i): Data-driven solutions of nonlinear partial differential equations," arXiv, 2017, primaryClass: cs.AI.
- [36] —, "Physics informed deep learning (part ii): Data-driven discovery of nonlinear partial differential equations," arXiv, 2017, eprint: 1711.10566, primaryClass: cs.AI.
- [37] A. B. Farimani, J. Gomes, and V. S. Pande, "Deep learning the physics of transport phenomena," *arXiv*, 2017, eprint: 1709.02432, primaryClass: cs.LG.
- [38] Y. Ba, G. Zhao, and A. Kadambi, "Blending diverse physical priors with neural networks," arXiv, 2019, eprint: 1910.00201, primaryClass: cs.LG.
- [39] I. Nayak, M. Kumar, and F. L. Teixeira, "Reduced-order analysis and prediction of kinetic plasma behavior using dynamic mode decomposition," *Journal of Computational Physics*, 2021, eprint: 2010.09613, primaryClass: physics.plasm-ph.
- [40] —, "Koopman autoencoder architecture for current density modeling in kinetic plasma simulations," in *International Applied Computational Electromagnetics Society (ACES) Symposium)*, Macau, China, August 1-5 2021.
- [41] S. P. Lloyd, "Least squares quantization in pcm," *IEEE Transactions on Information Theory*, vol. 28, pp. 129 137, 1982.
- [42] Z. Zhao and M. Kumar, "Split-bernstein approach to chance-constrained optimal control," Journal of Guidance Control and Dynamics, vol. 40, pp. 2782–2795, 2017.

- [43] R. Keil, R. Aggarwal, M. Kumar, and A. V. Rao, "Application of chance-constrained optimal control to optimal obstacle avoidance," in *Guidance Navigation and Conference at SciTech*, San Diego, CA, Jan 7-11, 2019.
- [44] R. Aggarwal, A. Soderlund, M. Kumar, and D. Grymin, "Risk aware suas path planning in an unstructured wildfire environment," in *American Control Conference*, Virtual Conference, July 1-3, 2020.
- [45] R. Aggarwal, M. Kumar, R. Keil, and A. V. Rao, "Chance-constrained path planning in narrow spaces for a dubins vehicle," *Journal of Intelligent & Robotic Systems*, article in review.
- [46] A. Soderlund, M. Kumar, and C. Yang, "Autonomous wildfire monitoring using airborne and temperature sensors in an evidential reasoning framework," in *Intelligent Systems Conference* @AIAA SciTech. San Diego, CA: American Institute of Aeronautics and Astronautics, January 7-11, 2019, 2019 Best Paper Award in Information Systems.
- [47] R. Aggarwal, A. Soderlund, and M. Kumar, "Multi-uav path planning in a spreading wild-fire," in *Guidance Navigation and Conference at SciTech*, Virtual Conference, Jan 11-20, 2021, finalist: GN&C Graduate Student Paper Competition.
- [48] C. Tilk, A.-K. Rothenbacher, T. Gschwind, and S. Irnich, "Asymmetry matters: Dynamic half-way points in bidirectional labeling for solving shortest path problems with resource constraints faster," *European Journal of Operational Research*, vol. 261, pp. 530–539, 2017.
- [49] B. W. Thomas, T. Caloguiri, and M. Hewitt, "An exact bidirectional a* approach for solving resource-constrained shortest path problems," *Networks*, vol. 73, pp. 187–205, 2019.
- [50] A. Juttner, B. Szviatovszki, I. Mecs, and Z. Rajko, "Lagrange relaxation based method for the qos routing problem," in *IEEE InfoCOM*, 2001, pp. 859–868.
- [51] R. Baldacci, A. Mingozzi, and R. Roberti, "New route relaxation and pricing strategies for the vehicle routing problem," *Operations Research*, vol. 59, pp. 1269–1283, 2011.
- [52] M. Kumar, S. G. Manyam, D. Casbeer, and D. Grymin, "Hybrid a*path planning for a dubins agent with path-dependent chance-constraints," in *American Control Conference*, New Orleans, LA, May 15-17, 2021.
- [53] T. Srivas, T. Artés, R. A. de Callafon, and I. Altintas, "Wildfire spread prediction and assimilation for FARSITE using ensemble kalman filtering 1," *Procedia Computer Science*, vol. 80, pp. 897–908, 2016. [Online]. Available: https://doi.org/10.1016%2Fj.procs.2016.05.328
- [54] G. Richards, "A general mathematical framework for modeling two-dimensional wildland fire spread," *International Journal of Wildland Fire*, vol. 5, no. 2, p. 63, 1995. [Online]. Available: https://doi.org/10.1071%2Fwf9950063
- [55] H. Rauscher, "Summary of fire and fuels specialists software tools survey," Joint Fire Science Program and National Interagency Fuels Working Group, Tech. Rep., 2009.
- [56] D. Wade, Ed., Do you BEHAVE? Application of the BehavePlus fire modeling system, ser. 3rd Fire Behavior and Fuels Conference. Birmingham, AL: International Association of Wildland Fire, 25-29 October 2010.

- [57] G. Shafer, A mathematical theory of evidence. Princeton university press, 1976, vol. 42.
- [58] L. Liu and R. R. Yager, "Classic works of the dempster-shafer theory of belief functions: An introduction," in *Classic Works of the Dempster-Shafer Theory of Belief Functions*. Springer Berlin Heidelberg, 2008, pp. 1–34. [Online]. Available: https://doi.org/10.1007%2F978-3-540-44792-4_1
- [59] A. Martin, C. Osswald, J. Dezert, and F. Smarandache, General combination rules for qualitative and quantitative beliefs. Infinite Study, 2008. [Online]. Available: https://arxiv.org/pdf/0906.5119.pdf
- [60] J. Dezert and F. Smarandache, "Introduction to the fusion of quantitative and qualitative beliefs," *Information & Security Journal*, vol. 20, 2006.
- [61] A. Soderlund and M. Kumar, "Markovian wildfire modeling via evidential reasoning," in 57th IEEE Conference on Decision and Control (CDC), Miami, FL, December 17-19, 2018.
- [62] —, "Estimating the spread of wildland fires via evidence-based information fusion," *IEEE Transactions on Control Systems Technology*, article in review.
- [63] E. Zervas, A. Mpimpoudis, C. Anagnostopoulos, O. Sekkas, and S. Hadjiefthymiades, "Multisensor data fusion for fire detection," *Information Fusion*, vol. 12, no. 3, pp. 150–159, jul 2011. [Online]. Available: https://doi.org/10.1016%2Fj.inffus.2009.12.006
- [64] P. V. K. Borges and E. Izquierdo, "A probabilistic approach for vision-based fire detection in videos," *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 20, no. 5, pp. 721–731, may 2010. [Online]. Available: https://doi.org/10.1109%2Ftcsvt.2010.2045813
- [65] Y. Rubner and C. Tomasi, "The earth mover's distance," in *Perceptual Metrics for Image Database Navigation*. Springer US, 2001, pp. 13–28. [Online]. Available: https://doi.org/10.1007%2F978-1-4757-3343-3_2
- [66] A. Soderlund, R. Aggarwal, and M. Kumar, "Estimating the real-time spread of wildfires with vision-equipped uavs and temperature sensors via evidential reasoning," in *Guidance Navigation and Conference at AIAA SciTech Forum*, Orlando, FL, Jan 6-10, 2020.
- [67] A. K. Sanyal, "Data-driven discrete-time control with Hölder-continuous real-time learning," International Journal of Control, 2021. [Online]. Available: https://www.tandfonline.com/doi/pdf/10.1080/00207179.2021.1901993
- [68] R. Hamrah, A. K. Sanyal, and S. P. Viswanathan, "Discrete finite-time stable position tracking control of unmanned vehicles," in *IEEE Conf. on Decision and Control*, Nice, France, Dec. 2019, pp. 7911–7916.
- [69] —, "Discrete finite-time stable attitude tracking control of unmanned vehicles on SO(3)," in American Control Conference, Denver, CO, 2020, pp. 824–829.
- [70] T. Lee, M. Leok, and N. H. McClamroch, "Lie group variational integrators for the full body problem in orbital mechanics," *Celestial Mechanics and Dynamical Astronomy*, vol. 98, no. 2, pp. 121–144, 2007.

- [71] R. Hamrah, R. R. Warier, and A. K. Sanyal, "Discrete-time stable tracking control of under-actuated rigid body systems on SE(3)," in 2018 IEEE Conference on Decision and Control (CDC), 2018, pp. 2932–2937.
- [72] S. P. Viswanathan, A. K. Sanyal, and E. Samiei, "Integrated guidance and feedback control of underactuated robotics system in SE(3)," *Journal of Intelligent & Robotic Systems*, vol. 89, pp. 251–263, 2018.
- [73] M. H. Dhullipalla, R. Hamrah, R. R. Warier, and A. K. Sanyal, "Trajectory generation on SE(3) for an underactuated vehicle with pointing direction constraints," in 2019 American Control Conference (ACC), 2019, pp. 1930–1935.
- [74] D. J. Schwemlein and R. Williams, "Effects of landscape position and season of burn on fire temperature in southern ohio's mixed-oak forests, in proc: 15th central hardwood forest conference. buckley, david s.; clatterbuck, wayne k., eds., pp. 250-257," U.S. Department of Agriculture, Forest Service, Southern Research Station, Asheville, NC, Tech. Rep. Tech. Rep. SRS-101, 2007.
- [75] K. L. Cole, K. F. Klick, and N. B. Pavlovic, "Fire temperature monitoring during experimental burns at indiana dunes national lakeshore," *Natural Areas Journal*, vol. 12, pp. 177–183, 1992.
- [76] B. D. Clinton, J. M. Vose, W. Swank, E. Berg, and D. Loftis, "Fuel consumption and fire characteristics during understory burning in a mixed white pine-hardwood stand in the southern appalachians," U.S. Department of Agriculture, Forest Service, Southern Research Station, Asheville, NC, Tech. Rep. Research Paper SRS-12, 1998.
- [77] B. A. Blankenship and M. A. Arthur, "Prescribed fire affects eastern white pine recruitment and survival on eastern kentucky ridgetops," Southern Journal of Applied Forestry, vol. 23, pp. 144–150, 1999.
- [78] R. E. Boerner and S. Morris, "Spatial variability in soil nitrogen dynamics after prescribed burning in ohio mixed-oak forests," *Landscape Ecology*, vol. 15, pp. 425–439, 2000.
- [79] L. Iverson, D. Yaussy, J. Rebbeck, T. Hutchinson, R. Long, and A. Prasad, "A comparison of thermocouples and temperature paints to monitor spatial and temporal characteristics of landscape-scale prescribed fires," *International Journal of Wildland Fire*, vol. 13, pp. 311–322, 2014.
- [80] Y. Tao and R. Williams, "Fuel loading and the potential for carbon emissions from fire following two shelterwood harvest treatments in southern ohio," Genomics and Applied Biology, vol. 29, no. 4, pp. 628–638, 1990.
- [81] J. Sharples, R. McRae, R. Weber, and A. Gill, "A simple index for assessing fuel moisture content," *Environmental Modelling and Software*, vol. 24, no. 5, pp. 637–646, 2009.
- [82] "NVIDIA® Jetson[™] TX2," https://www.nvidia.com/en-us/autonomous-machines/embedded-systems/jetson-tx2/.
- [83] "Orbitty Carrier for NVIDIA® Jetson™ TX2/TX2i," https://connecttech.com/product/orbitty-carrier-for-nvidia-jetson-tx2-tx1/.

- [84] "MAVROS ROS package for MAVLink," https://github.com/mavlink/mavros/.
- [85] M. Webster, D. Western, D. Araiza-Illan, C. Dixon, K. Eder, M. Fisher, and A. Pipe, "A corroborative approach to verification and validation of human-robot teams," *The International Journal of Robotics Research*, vol. 39, no. 1, pp. 73–99, 2020.
- [86] C. Yang and M. Kumar, "On the effectiveness of monte carlo for initial uncertainty forecasting in nonlinear dynamical systems," *Automatica*, vol. 87, pp. 301 309, 2018.
- [87] —, "A closed-loop adaptive monte carlo framework for uncertainty forecasting in nonlinear dynamic systems," AIAA Journal of Guidance, Control and Dynamics, vol. 42, no. 6, pp. 1218–1236, 2019.
- [88] A. VanFossen and M. Kumar, "Parallelized global stochastic optimization for efficient ensemble enhancement within an adaptive monte carlo forecasting platform," in AIAA Science and Technology Forum (Scitech), Nashville, TN, 11-15 January, 2021.
- [89] K. Murphy, Machine Learning: A Probabilistic Perspective. The MIT Press, 2012, ch. Clustering, pp. 875–903.
- [90] A. A. Soderlund, "Characterization of wildland fires through evidence-based sensor fusion and planning," Ph.D. dissertation, The Ohio State University, 2020.
- [91] R. C. Rothermel et al., "A mathematical model for predicting fire spread in wildland fuels," Intermountain Forest & Range Experiment Station, Forest Service, US Department of Agriculture Washington, DC, 1972.
- [92] P. L. Andrews, "The rothermel surface fire spread model and associated developments: A comprehensive explanation," Gen. Tech. Rep. RMRS-GTR-371. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Research Station. 121 p., vol. 371, 2018.
- [93] G. Wiggins and J. McTighe, *Understanding By Design*. Association for Supervision & Curriculum Development, 2005, no. 2nd Expanded edition.
- [94] Y. Sun and M. Kumar, "Numerical solution of high dimensional stationary fokker-planck equations via tensor decomposition and chebyshev spectral differentiation," Computers & Mathematics with Applications, vol. 67, pp. 1960–1977, 2014.
- [95] —, "A numerical solver for high dimensional transient fokker-planck equation in modeling polymeric fluids," *Journal of Computational Physics*, vol. 289, pp. 149–168, 2015.
- [96] —, "Uncertainty propagation in orbital mechanics via tensor decomposition," Celestial Mechanics and Dynamical Astronomy, vol. 124, pp. 269–294, 2016.
- [97] C. Yang and M. Kumar, "An adaptive monte carlo method for uncertainty forecasting in perturbed two-body dynamics," *Acta Astronautica: Special Issue on Space Situation Awareness*, vol. 155, pp. 369–378, February 2019.
- [98] Y. Sun and M. Kumar, "Numerical solution of high dimensional stationary fokker-planck equations via tensor decomposition and chebyshev spectral differentiation," in *American Control Conference*, Portland OR, Jun. 4-6, 2014.

- [99] —, "A tensor decomposition method for high dimensional fokker-planck equations for modeling polymeric liquids," in AIAA Science and Technology Forum, Kissimmee FL, Jan 5-9, 2015.
- [100] —, "Nonlinear bayesian filtering based on fokker planck equation and tensor decomposition," in 18th International Conference on Information Fusion, Washington, DC, Jul 6-9 2015.
- [101] —, "Uncertainty forecasting in the perturbed two-body problem via tensor decomposition," in *American Control Conference*, Boston, MA, Jul 6-9 2016.
- [102] C. Yang and M. Kumar, "Beyond monte carlo for the intial uncertainty propagation problem," in *IEEE Conference on Decision and Control*, Los Angeles CA, Dec 15-17, 2014.
- [103] C. Yang, K. Buck, and M. Kumar, "An evaluation of monte carlo for nonlinear initial uncertainty propagation in keplerian mechanics," in 18th International Conference on Information Fusion, Washington, DC, Jul 6-9 2015.
- [104] C. Yang and M. Kumar, "Discrepancy driven adaptive monte carlo for uncertainty fore-casting in nonlinear dynamic systems," in 56th IEEE Conference on Decision and Control, Melbourne, Australia, Dec 15-17, 2014.
- [105] —, "An adaptive monte carlo method for uncertainty forecasting in perturbed two-body dynamics," in 1st IAA International Conference on Space Situational Awareness, Orlando, FL, Nov 13-15 2017.
- [106] —, "Discrepancy driven adaptive monte carlo for forward uncertainty forecasting in non-linear dynamical systems," *The American Control Conference*, June 27-29, 2018.
- [107] —, "A closed-loop adaptive monte carlo framework for forecasting in geo," in *Guidance*, Navigation and Control Conference @AIAA SciTech. San Diego, CA: American Institute of Aeronautics and Astronautics, January 7-11, 2019.
- [108] R. Keil, A. T. Miller, M. Kumar, and A. V. Rao, "Method for solving chance constrained optimal control problems using biased kernel density estimators," *Optimal Control Applications* and Methods, pp. 1–25, 2020.
- [109] R. Keil, M. Kumar, and A. V. Rao, "A warm start method for solving chance constrained optimal control problems," *Journal of Guidance Control and Dynamics*, article in review.
- [110] R. Aggarwal and M. Kumar, "A probabilistic approach to optimization of drogue-to-main parachute transition altitude for ballistic airdrops," in *Guidance Navigation and Conference at SciTech*, San Diego, CA, Jan 7-11, 2019.
- [111] —, "Chance-constrained optimal control approach to optimal path planning," in *International Mechanical Engineering Congress and Exposition*, Pittsburgh, PA, No 9-15, 2018.
- [112] M. H. Dhulliplalla, R. Hamrah, and A. K. Sanyal, "Trajectory generation on SE(3) with applications to a class of underactuated aerial vehicles," in *Proc. IEEE Conference on Decision and Control*, 2017, pp. 2557–2562.

- [113] B.Kakillioglu, A. Ahmad, and S. Velipasalar, "Object classification from 3D volumetric data with 3D capsule networks," in *Proc. IEEE Global Conference on Signal and Information Processing*, 2018.
- [114] Y. Li, H. Eslamiat, N. Wang, Z. Zhao, A. K. Sanyal, and Q. Qiu, "Autonomous waypoint planning and trajectory generation for multi-rotor UAVs," in *Int. Conf. on Cyber-Physical Systems*, 2019.