Publication List

Wenhan Cao

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Published Papers

[1] W. Cao, C. Liu, Z. Lan, S. E. Li, W. Pan, and A. Alessandri. "Robust Bayesian inference for moving horizon estimation". In: *Automatica* 173 (2025), p. 112108. ISSN: 0005-1098. DOI: https://doi.org/10.1016/j.automatica.2024.112108. URL: https://www.sciencedirect.com/science/article/pii/S0005109824006010.

[2] W. Cao, A. Capone, R. Yadav, S. Hirche, and W. Pan. "Computation-Aware Learning for Stable Control with Gaussian Process". In: *Proceedings of Robotics: Science and Systems*. Delft, Netherlands, July 2024. DOI: 10.15607/RSS.2024.XX.004.

[3] W. Cao and W. Pan. "Impact of Computation in Integral Reinforcement Learning for Continuous-Time Control". In: *The Twelfth International Conference on Learning Representations*. 2024. URL: https://openreview.net/forum?id=xJEd8PkdNz.

[4] S. Liu, W. Cao, C. Liu, T. Zhang, and S. E. Li. "Convolutional Unscented Kalman Filter for Multi-Object Tracking with Outliers". In: *IEEE Transactions on Intelligent Vehicles* (2024), pp. 1–12. DOI: 10.1109/TIV.2024.3446851.

[5] J. Duan, W. Cao, Y. Zheng, and L. Zhao. "On the Optimization Landscape of Dynamic Output Feedback Linear Quadratic Control". In: *IEEE Transactions on Automatic Control* 69.2 (2024), pp. 920–935. DOI: 10.1109/TAC.2023.3275732.

[6] W. Cao, C. Liu, Z. Lan, Y. Piao, and S. E. Li. "Generalized Moving Horizon Estimation for Nonlinear Systems with Robustness to Measurement Outliers". In: *2023 American Control Conference (ACC)*. 2023, pp. 1614–1621. DOI: 10.23919/ACC55779.2023.10156391.

[7] W. Wu, C. Liu, W. Cao, C. Chen, H. Li, and S. E. Li. "Multi-sensor Calibration System for Mobile Robots". In: *2023 7th CAA International Conference on Vehicular Control and Intelligence (CVCI)*. 2023, pp. 1–7. DOI: 10.1109/CVCI59596.2023.10397235.

[8] W. Wang, Y. Zhang, J. Gao, Y. Jiang, Y. Yang, Z. Zheng, W. Zou, J. Li, C. Zhang, W. Cao, G. Xie, J. Duan, and S. E. Li. "GOPS: A general optimal control problem solver for autonomous driving and industrial control applications". In: *Communications in Transportation Research* 3 (2023), p. 100096. ISSN: 2772-4247. DOI: https://doi.org/10.1016/j.commtr.2023.100096. URL: https://www.sciencedirect.com/science/article/pii/S2772424723000070.

[9] W. Cao, J. Duan, S. Eben Li, C. Chen, C. Liu, and Y. Wang. "Primal-Dual Estimator Learning Method with Feasibility and Near-Optimality Guarantees". In: *2022 IEEE 61st Conference on Decision and Control (CDC)*. 2022, pp. 4104–4111. DOI: 10.1109/CDC51059.2022.9992814.

[10] J. Duan, W. Cao, Y. Zheng, and L. Zhao. "On the Optimization Landscape of Dynamic Output Feedback: A Case Study for Linear Quadratic Regulator". In: *2022 IEEE 61st Conference on Decision and Control (CDC)*. 2022, pp. 4040–4045. DOI: 10.1109/CDC51059.2022.9992503.

[11] Y. Yin, S. E. Li, K. Tang, W. Cao, W. Wu, and H. Li. "Approximate optimal filter design for vehicle system through actor-critic reinforcement learning". In: *Automotive Innovation* 5.4 (2022), pp. 415–426.

[12] Z. Gu, Y. Yang, J. Duan, S. E. Li, J. Chen, W. Cao, and S. Zheng. "Belief state separated reinforcement learning for autonomous vehicle decision making under uncertainty". In: *2021 IEEE International Intelligent Transportation Systems Conference (ITSC)*. 2021, pp. 586–592. DOI: 10.1109/ITSC48978.2021.9564576.

[13] W. Cao, J. Chen, J. Duan, S. E. Li, Y. Lyu, Z. Gu, and Y. Zhang. "Reinforced Optimal Estimator". In: *IFAC-PapersOnLine* 54.20 (2021). Modeling, Estimation and Control Conference MECC 2021, pp. 366–373. ISSN: 2405-8963. DOI: https://doi.org/10.1016/j.ifacol.2021.11.201. URL: https://www.sciencedirect.com/science/article/pii/S240589632102245X.

[14] J. Li, S. Eben Li, K. Tang, Y. Lv, and W. Cao. "Reinforcement Solver for H-infinity Filter with Bounded Noise". In: *2020 15th IEEE International Conference on Signal Processing (ICSP)*. Vol. 1. 2020, pp. 62–67. DOI: 10.1109/ICSP48669.2020.9320936.

[15] L. Xin, S. E. Li, P. Wang, W. Cao, B. Nie, C.-Y. Chan, and B. Cheng. "Accelerated Inverse Reinforcement Learning with Randomly Pre-sampled Policies for Autonomous Driving Reward Design". In: *2019 IEEE Intelligent Transportation Systems Conference (ITSC)*. 2019, pp. 2757–2764. DOI: 10.1109/ITSC.2019.8916952.

# Preprints(* donotes equal contribution)

[16] S. Liu*, W. Cao*, C. Liu, Z. He, T. Zhang, and S. E. Li. "One Filters All: A Generalist Filter For State Estimation". In: *preprint* (2024).

[17] W. Cao, T. Zhang, Z. Sun, C. Liu, S. S.-T. Yau, and S. E. Li. "Nonlinear Bayesian Filtering with Natural Gradient Gaussian Approximation". In: *arXiv preprint arXiv:2410.15832* (2024).

[18] W. Cao, S. Liu, C. Liu, Z. He, S. S.-T. Yau, and S. E. Li. "Convolutional Bayesian Filtering". In: *arXiv preprint arXiv:2404.00481* (2024).

[19] T. Zhang, W. Cao, C. Liu, T. Zhang, J. Li, and S. E. Li. "Robust State Estimation for Legged Robots with Dual Beta Kalman Filter". In: *arXiv preprint arXiv:2411.11483* (2024).