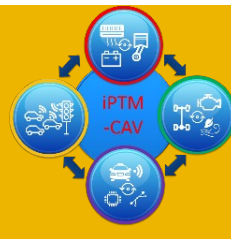
Publications/Presentations (I)



Traffic Modeling

[1] Gong, X., Gao, Y., Feng, Y., Sun., J and Zhao D., "***Evaluation of the Energy Efficiency in a Mixed Traffic with Automated Vehicles and Human Controlled Vehicles***", 21st International Conference on Intelligent Transportation Systems, Maui, HI, USA, November 2018.

[2] Chang, Y., Yang, W., and Zhao D., "***Energy Efficiency and Emission Testing for Connected and Automated Vehicles Using Real-World Driving Data***," 21st IEEE International Conference on Intelligent Transportation Systems, Maui, HI, U.S., November 2018.

[3] Yang Z., Feng Y., Gong X., Zhao D., and Sun J. "***Eco-trajectory Planning with Consideration of Queue Along Congested Corridor for Hybrid Electric Vehicles*",** Transportation Research Board (TRB) 98th Annual Meeting, Washington D.C., USA, January 2019.

[4] Yang Z., Feng Y., Gong X., Zhao D., and Sun J. "*Eco-trajectory Planning with Consideration of Queue Along Congested Corridor for Hybrid Electric Vehicles*", Journal of Transportation Research Record (TRR), Vol. 2673, No. 9, pp. 277-286.

[5] Feng Y., Yang Z., Amini M., Hu Q., and Sun J. "***Eco-Trajectory Planning Considering Cut-in Intention for Hybrid Electric Connected Vehicles***", TRB 99th Annual Meeting, Washington D.C., USA, January 2020.

Vehicle Power and Thermal Management

[6] Wang, H., Kolmanovsky, I., Amini, M.R. and Sun, J., "***Model Predictive Climate Control of Connected and Automated Vehicles for Improved Energy Efficiency***," 2018 American Control Conference, Milwaukee, WI, USA, June 2018.

[7] Amini, M.R., Wang, H., Gong, X., Sun, J., and Kolmanovsky I., "***Optimization-Based Thermal Management of Connected and Automated HEVs for Improved Energy Efficiency***" SAE Thermal Management Systems Symposium, San Diego, CA, October 2018.

[8] Amini, M.R., Sun, J., and Kolmanovsky I., "***Two-Layer Model Predictive Battery Thermal and Energy Management Optimization for Connected and Automated Electric Vehicles***", 57th IEEE Conference on Decision and Control, Miami, FL, USA, December 2018 .

[9] Amini, M.R., Wang, H., Gong, X., Liao-McPherson, D., Kolmanovsky, I., and Sun, J., "***Cabin and Battery Thermal Management of Connected and Automated HEVs for Improved Energy Efficiency using Hierarchical Model Predictive Control***", IEEE Transactions on Control Systems Technology, Vol. 28, No. 5, pp. 1711-1726, 2020.

[10] Amini, M.R., Gong, X., Feng, Y., Wang, H., Kolmanovsky, I., and Sun, J., "***Sequential Optimization of Speed, Thermal Load, and Power Split in Connected HEVs***", 2019 American Control Conference (ACC), Philadelphia, PA, USA.

[11] Amini, M.R., X., Feng, Y., Wang, H., Kolmanovsky, I., and Sun, J., "***Thermal Responses of Connected HEVs Engine and Aftertreatment Systems to Eco-Driving***", 3rd Conference on Control Technology and Applications (CCTA 2019), Hong Kong, China.

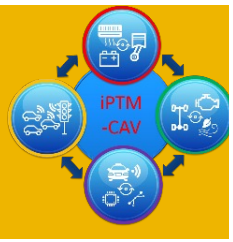
[12] Gong, X., Wang, H, Amini, M.R., Kolmanovsky, I., and Sun, J., "***Integrated Optimization of Power Split, Engine Thermal Management, and Cabin Heating for Hybrid Electric Vehicles***", CCTA 2019, Hong Kong, China.

[13] Wang, H., Meng, Y., Zhang, Q., Amini, M.R., Kolmanovsky, I., Sun, J., and Jennings, M., "***MPC-based Precision Cooling Strategy (PCS) for Efficient Thermal Management of Automotive Air Conditioning System***", CCTA 2019. **[in collaboration with Ford].**

[14] Wang, H., Amini, M.R., Song, Z., Kolmanovsky, I. and Sun, J. "***Combined Energy and Comfort Optimization of Air Conditioning System in Connected and Automated Vehicles***," ASME 2019 Dynamic Systems and Control Conference (DSCC), Park City, UT, USA.

[15] Amini, M.R., Sun, J., and Kolmanovsky, I. "***Robust Hierarchical MPC for Handling Long Horizon Demand Forecast Uncertainty with Application to Automotive Thermal Management***", 58th IEEE Conference on Decision and Control (CDC), Nice, France, 2019.

Publications/Presentations (II)



Vehicle Power and Thermal Management (cont.)

[16] Amini, M.R., Sun, J., and Kolmanovsky, I. "***Hierarchical MPC for Robust Eco-Cooling of Connected and Automated Vehicles and Its Application to Electric Vehicle Battery Thermal Management***", IEEE Trans. on Control Systems Technology, in press, DOI: 10.1109/TCST.2020.2975464, 2020.

[17] Amini, M.R., Feng, Y., Yang, Z., Sun, J. and Kolmanovsky, I., "***Long-term Vehicle Speed Prediction via Traffic Data Mining for Improved Energy Efficiency of Connected Electric Vehicles***," TRB 99th Annual Meeting, Washington D.C., USA, January 2020

[18] Hu, Q., Amini, M.R., Wang, H., Kolmanovsky, I., and Sun, J., "***Integrated Power and Thermal Management of Connected HEVs via Multi-Horizon MPC***," American Control Conference (ACC), 2020,Denver, CO, USA.

[19] Hu, Q., Amini, M.R., Feng, Y., Yang, Z., Wang, H., Kolmanovsky, I., Sun, J., Wiese, A., Qiu, Z., and Buckland, J., "***Engine and Aftertreatment Co-Optimization of Connected HEVs via Multi-Range Vehicle Speed Planning and Prediction***," WCX SAE World Congress Experience, 2020, Detroit, MI, USA). **[in collaboration with Ford]**

[20] M.R. Amini, Y. Feng, Z. Yang, I. Kolmanovsky, and J. Sun, "***Long-term Vehicle Speed Prediction via Historical Traffic Data Analysis for Improved Energy Efficiency of Connected Electric Vehicles***," 13 pages, Journal of Transportation Research Record (TRR), in press, DOI:10.1177/0361198120941508.

[21] Wang, H., Amini, M.R., Hu, Q., Kolmanovsky, I., and Sun, J. "***Eco-cooling Control Strategy for Automotive Air Conditioning System: Design and Experimental Validation***," IEEE Transactions on Control Systems Technology [submitted in February 2020, under review].

[22] Q. Hu, M.R. Amini, I. Kolmanovsky, J. Sun, A. Wiese, and J.H. Buckland Seeds, "***Multi-Horizon Model Predictive Control: An Application to Power and Thermal Management of Connected Hybrid Electric Vehicles,"*** IEEE Transactions on Control Systems Technology, [submitted in August2020].

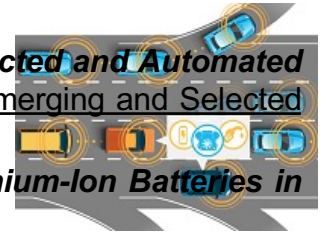
Battery Thermal Management

[23] Zhu, C., Lu, F., Zhang, H., Sun, J., and Mi, C. "***A Real-Time Battery Thermal Management Strategy for Connected and Automated Hybrid Electric Vehicles (CAHEVs) Based on Iterative Dynamic Programming***," IEEE Transactions on Vehicular Technology, Vol 67, No. 9, 2018.

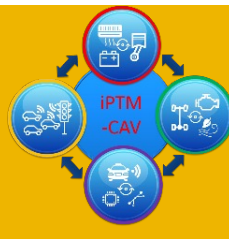
[24] Zhu, C., Lu, F., and Mi, C. , "***A Finite-Set Model-Based Predictive Battery Thermal Management in Connected and Automated Hybrid Electric Vehicles***," IEEE Applied Power Electronics Conference (APEC), San Antonio, TX, March 4-8, 2018.

[25] Zhu, C., Lu, F., Zhang, H., and Mi, C. "***Robust Predictive Battery Thermal Management strategy for Connected and Automated Hybrid Electric Vehicles Based on Thermoelectric Parameter Uncertainty Compensation***," IEEE Journal of Emerging and Selected Topics in Power Electronics, Vol 6, No. 4, 2018.

[26] Chu, C., Shang, Y., Zhao, S., and Mi, C., "***Core Temperature Estimation for Self-Heating Automotive Lithium-Ion Batteries in Cold Climates***," IEEE Transactions on Industrial Informatics, Vol. 16, No. 5, pp. 3366-3375, 2019.



Publications/Patents (III)



[27] S. Zhao, M.R. Amini, J. Sun, and C. Mi, "***A Two-Layer Real-Time Optimization Control Strategy for Integrated Battery Thermal Management and HVAC System in Connected and Automated HEVs***," 10 pages, IEEE Transactions on Vehicular Technology [submitted in June 2020]

[28] S. Zhao and C. Mi, ***"A Sequential Real-Time Optimization and Control of Integrated Battery Thermal Management and HVAC in Connected and Automated HEVs Based on Hierarchical and Iterative Dynamic programming and Model Predictive Control,"*** 10 pages***,*** IEEE Transactions on Intelligent Transportation***.*** 10 pages [submitted in July 2020]

- **Engine and Aftertreatment Co-optimization**

[29] Hong W., I. Chakraborty, and H. Wang, "***Parametric Optimization Problem Formulation for Connected Hybrid Electric Vehicles using Neural Network based Equivalent Model***," IEEE 90th Vehicular Technology Conference, Honolulu, HI, USA, Sept. 2019.

[30] Hong W., I. Chakraborty, and H. Wang, "***Parameter Co-optimization for Hybrid Electric Vehicles Powertrain System Leveraging V2V/V2I Information***," International Conference on Advanced Mechatronic Systems, Shiga, Japan, August 2019.

- **Patent Applications**

[31] Amini, M.R., Sun, J., Kolmanovsky, I., and Wang, H., "***Actively Controlled Coolant Tank To Increase Thermal Storage Capacity of HEVs***," U.S. Patent Application No.: PCT/US2019/058535, Filed on October 29, 2019.

[32] Amini, M.R., Feng, Y., Yang, Z., Sun, J., and Kolmanovsky "***Multi-Range Vehicle Speed Prediction using Vehicle Connectivity for Enhanced Energy Efficiency of Electrified Vehicles***" U.S. Provisional Patent Application No.: 63/007,670, Filed on April 9, 2020

[33] Mi, C., Zhao, S., and Zhu, C., "***A Two-Dimension of Freedom Internal Self Heating System for Energy Storage Devices***," U.S. Patent Application, Filed in December, 2019.

Overall Outcome (to date):
1 Plenary Talk, **3** Patent Applications, **19** Conference Presentations/Papers, **11** Journal Papers