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# Scott Moura

Associate Professor | eCAL Director  
Clare and Hsieh Wen Shen Endowed Distinguished Professorship  
Civil & Environmental Engineering  
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## Education

**UC President's Postdoctoral Fellow** (2011-2013) **University of California, San Diego**  
Topic: *PDE Control and Estimation Techniques for Advanced Battery Management Systems*  
Advisor: Professor Miroslav Krstić

**Ph.D., Mechanical Engineering** (2011) **University of Michigan, Ann Arbor**  
Dissertation: *Techniques for Battery Health Conscious Power Management via Electrochemical Modeling and Optimal Control*  
Advisors: Professor Jeffrey L. Stein (Michigan) and Professor Hosam K. Fathy (Penn State)  
Committee: Prof. Jeffrey Stein (Michigan-ME), Prof. Hosam Fathy (Penn State-MNE), Prof. Huei Peng (Michigan-ME), Prof. Jessie Grizzle (Michigan-EECS:Systems)  
Major Field: Systems and Controls

**M.S.E, Mechanical Engineering** (2008) **University of Michigan, Ann Arbor**  
Thesis: *Plug-in Hybrid Electric Vehicle Power Management: Optimal Control & Battery Sizing*  
Advisors: Professor Jeffrey L. Stein (Michigan), Professor Hosam K. Fathy (Penn State), and Professor Duncan S. Callaway (UC Berkeley)  
Major Field: Systems and Controls

**B.S., Mechanical Engineering** (2006) **University of California, Berkeley**  
Graduated with Honors

## Research Interests

**Theory:** Control & estimation, optimization, data science

**Applications:** Batteries; automated, connected & electrified vehicles; clean energy systems

## Awards & Honors

**ASME Dynamic Systems and Control Division Young Investigator Award** (2021)

**UC Berkeley Institute of Transportation Studies Faculty of the Year** (2020)

**NSF CAREER** (2019-2024)

**IFAC Young Author Award Finalist (as advisor, student is Sangjae Bae)** (2018)  
2<sup>nd</sup> IFAC Conference on Cyber-Physical & Human Systems, Miami, FL USA

**Best Student Paper Finalist (as advisor, student is Saehong Park)** (2018)  
2018 American Control Conference, Milwaukee, WI USA

**Energy Systems Best Paper Award Finalist** (2018)  
2018 American Control Conference, Milwaukee, WI USA

**National Academy of Engineering, China-America Frontiers of Engineering Participant** (2017)

**Carol D. Soc Distinguished Graduate Student Mentoring Award for Junior Faculty** (2017)

**1<sup>st</sup> LG Chem Battery Innovation Contest Winner** (2017)

**Blavatnik Awards for Young Scientists – UC Berkeley Campus nominee** (2016)

**O. Hugo Schuck Best Paper Award**, American Control Conference (2015)  
“Sensitivity-Based Interval PDE Observer for Battery SOC Estimation”

**IEEE Transactions on Smart Grid Best Reviewer Award** (2015)

**Siebel Energy Institute Research Grant (2 awards)** (2015)

**Energy Systems Best Paper Award**  
2015 ASME Dynamic Systems and Control Conference, Columbus, OH USA

**Best Student Paper Award (as advisor, student is Hector Perez)**  
2015 American Control Conference, Chicago, IL USA

**Hellman Fellow** (2015)

**University of California Presidential Postdoctoral Fellowship**  
University of California (2011 - 2013)

**National Science Foundation (NSF) Graduate Research Fellowship**  
National Science Foundation (2008 - 2011)

**ProQuest Distinguished Dissertation Award, Honorable Mention**  
Rackham Graduate School, University of Michigan (2011)

**Distinguished Leadership Award**  
College of Engineering, University of Michigan (2009)

**Rackham Merit Fellowship (RMF)**  
University of Michigan Rackham Graduate School (2006 – 2011)

**2012 ASME Dynamic Systems and Control Conference, Ft Lauderdale, CA USA**  
Semi-Plenary Speaker  
Best Presentation in Session

**2012 American Control Conference, Montreal, QC Canada**  
Best Presentation in Session

**2011 American Control Conference, San Francisco, CA USA**  
Best Student Paper Finalist  
Best Presentation in Session

**2009 ASME Dynamic Systems and Control Conference, Hollywood, CA USA**  
Best Student Paper Finalist  
Best Presentation in Session

**2009 American Control Conference, Baltimore, MD USA**  
Best Presentation in Session

**2008 ASME Dynamic Systems and Control Conference, Ann Arbor, MI USA**  
Best Presentation in Session

**2008 Society of Hispanic Professional Engineers Conference, Phoenix, AZ USA**  
1<sup>st</sup> Place Technical Paper Competition

**2008 Engineering Graduate Symposium, University of Michigan**  
2<sup>nd</sup> Place Poster, Control Systems Session

**2007 Engineering Graduate Symposium, University of Michigan**  
2<sup>nd</sup> Place Oral Presentation, System Analysis and Control Session

**Michigan Memorial Phoenix Energy Institute (MMPEI)**  
MMPEI-Rackham Energy Fellowship, Honorable Mention (2007 – 2008)

**SHPE Academic Achievement Award**  
Society of Hispanic Engineers and Scientists, University of Michigan (2007)

## National Science Foundation (NSF)

Graduate Research Fellowship Program (GRFP), Honorable Mention (2006 – 2007)

## Publications

Total Citations  $\geq 6900$  | *h-index* = 40 | *i10-index* = 87 ([Google Scholar](#), October 2021)

**Bold names** indicate students that I have primarily mentored

### Peer-Reviewed Journals

- J1. S. J. Moura, D. S. Callaway, H. K. Fathy, and J. L. Stein, “Tradeoffs between Battery Energy Capacity and Stochastic Optimal Power Management in Plug-in Hybrid Electric Vehicles,” *Journal of Power Sources*, v 195, n 9, p 2979-2988, May 2010. DOI: [10.1016/j.jpowsour.2009.11.026](#)
- J2. S. Bashash, S. J. Moura, J. C. Forman, and H. K. Fathy, “Plug-in hybrid electric vehicle charge pattern optimization for energy cost and battery longevity,” *Journal of Power Sources*, v 196, n 1, p 541-549, January 2011. DOI: [10.1016/j.jpowsour.2010.07.001](#)
- J3. S. J. Moura, H. K. Fathy, D. S. Callaway, and J. L. Stein, “A Stochastic Optimal Control Approach for Power Management in Plug-in Hybrid Electric Vehicles,” *IEEE Transactions on Control Systems Technology*, v 19, n 3, p 545-555, May 2011. DOI: [10.1109/TCST.2010.2043736](#)
- J4. S. J. Moura, J. C. Forman, S. Bashash, J. L. Stein, and H. K. Fathy, “Optimal Control of Film Growth in Lithium-Ion Battery Packs via Relay Switches,” *IEEE Transactions on Industrial Electronics*, v 58, n 8, p 3555-3566, Aug 2011. DOI: [10.1109/TIE.2010.2087294](#)
- J5. S. Bashash, S. J. Moura, and H. K. Fathy, “On the Aggregated Grid Load Imposed by Battery Health-Conscious Charging of Plug-in Hybrid Electric Vehicles,” *Journal of Power Sources*, v 196, n 20, p 8747-8754, Oct 2011. DOI: [10.1016/j.jpowsour.2011.06.025](#)
- J6. J. C. Forman, S. J. Moura, J. L. Stein, H. K. Fathy, “Genetic Identification and Fisher Identifiability Analysis of the Doyle-Fuller-Newman Model from Experimental Cycling of a LiFePO<sub>4</sub> Cell,” *Journal of Power Sources*, v 210, p 263-275, July 2012. DOI: [10.1016/j.jpowsour.2012.03.009](#)
- J7. S. J. Moura and H. K. Fathy, “Optimal Boundary Control of Reaction-Diffusion PDEs via Weak Variations,” *ASME Journal of Dynamic Systems, Measurement, and Control*, v 135, n 3, pp. 034501-034508, Feb 2013. DOI: [10.1115/1.4023071](#)
- J8. S. J. Moura, J. L. Stein, and H. K. Fathy, “Battery Health Conscious Power Management in Plug-in Hybrid Electric Vehicles via Electrochemical Modeling and Stochastic Control,” *IEEE Transactions on Control Systems Technology*, v 21, n 3, pp. 679-694, May 2013. DOI: [10.1109/TCST.2012.2189773](#)
- J9. S. J. Moura and Y. A. Chang, “Lyapunov-based Switched Extremum Seeking for Photovoltaic Power Maximization,” *Control Engineering Practice*, v 21, n 7, pp. 971-980, July 2013. DOI: [10.1016/j.conengprac.2013.02.009](#)
- J10. S. J. Moura, N. A. Chaturvedi, M. Krstic, “Adaptive PDE Observer for Battery SOC/SOH Estimation via an Electrochemical Model,” *ASME Journal of Dynamic Systems, Measurement, and Control*, v 136, n 1, pp. 011015 – 011026, Oct 2013. DOI: [10.1115/1.4024801](#)
- J11. S. J. Moura, J. Bendsten, V. Ruiz, “Parameter Identification of Aggregated Thermostatically Controlled Loads for Smart Grids using PDE Techniques,” *International Journal of Control*, v 87, n 7, pp. 1373-1386, May 2014 (Invited Paper). DOI: [10.1080/00207179.2014.915083](#)

- J12. **C. Sun**, X. Hu, S. J. Moura, F. Sun, “Velocity Predictors for Predictive Energy Management in Hybrid Electric Vehicles,” *IEEE Transactions on Control Systems Technology*, v 23, n 3, pp. 1197-1204, May 2015. DOI: [10.1109/TCST.2014.2359176](https://doi.org/10.1109/TCST.2014.2359176)
- J13. **C. Sun**, S. J. Moura, X. Hu, J. K. Hedrick, F. Sun, “Dynamic Traffic Feedback Data Enabled Energy Management in Plug-in Hybrid Electric Vehicles,” *IEEE Transactions on Control Systems Technology*, v 23, n 3, pp. 1075-1086, May 2015. DOI: [10.1109/TCST.2014.2361294](https://doi.org/10.1109/TCST.2014.2361294)
- J14. S. Saxena, **C. Le Floch**, J. MacDonald, S. J. Moura, “Quantifying EV Battery End-of-Life through Analysis of Travel Needs with Vehicle Powertrain Models,” *Journal of Power Sources*, v 282, n 15, pp. 265-276, May 2015. DOI: [10.1016/j.jpowsour.2015.01.072](https://doi.org/10.1016/j.jpowsour.2015.01.072)
- J15. A Ghaffari, S. J. Moura, M. Krstic, “PDE-based Modeling, Control, and Stability Analysis of Heterogeneous Thermostatically Controlled Load Populations,” *ASME Journal of Dynamic Systems, Measurement, and Control*, v 137, n 10, pp. 101009-101009-9, July 2015. DOI: [10.1115/1.4030817](https://doi.org/10.1115/1.4030817).
- J16. **H. E. Perez**, N. Shahmohammadhamedani, S. J. Moura, “Enhanced Performance of Li-ion Batteries via Modified Reference Governors & Electrochemical Models,” *IEEE/ASME Transactions on Mechatronics*, v 20, n 4, pp. 1511-1520, Aug 2015. DOI: [10.1109/TMECH.2014.2379695](https://doi.org/10.1109/TMECH.2014.2379695)
- J17. S. Saxena, J. MacDonald, S. J. Moura, “Charging Ahead on the Transition to Electric Vehicles with Standard 120 V Wall Outlets,” *Applied Energy*, v 157, pp. 720-728, Nov 2015. DOI: [10.1016/j.apenergy.2015.05.005](https://doi.org/10.1016/j.apenergy.2015.05.005)
- J18. **E. Burger**, S. J. Moura, “Gated Ensemble Learning Method for Demand-Side Electricity Load Forecasting,” *Energy and Buildings*, v 109, pp. 23-34, Dec 2015. DOI: [10.1016/j.enbuild.2015.10.019](https://doi.org/10.1016/j.enbuild.2015.10.019).
- J19. X. Hu, N. Murgovski, B. Egardt, S. J. Moura, D. Cao, “Integrated Optimization of Battery Sizing, Charging, and Power Management in Plug-in Hybrid Electric Vehicles,” *IEEE Transactions on Control Systems Technology*, vol. 24, no. 3, pp. 1036-1043, May 2016. DOI: [10.1109/TCST.2015.2476799](https://doi.org/10.1109/TCST.2015.2476799).
- J20. **C. Le Floch**, F. Belletti, S. J. Moura, “Optimal Charging of Electric Vehicles for Load Shaping: a Dual Splitting Framework with Explicit Convergence Bounds,” *IEEE Transactions on Transportation Electrification*, vol. 2, no. 2, pp. 190-199, June 2016. DOI: [10.1109/TTE.2016.2531025](https://doi.org/10.1109/TTE.2016.2531025).
- J21. **C. Sun**, F. Sun, S. J. Moura, “Nonlinear Predictive Energy Management of Residential Buildings with Photovoltaics & Batteries,” *Journal of Power Sources*, v 325, pp. 723-731, Sep 2016. DOI: [10.1016/j.jpowsour.2016.06.076](https://doi.org/10.1016/j.jpowsour.2016.06.076)
- J22. X. Wu, X. Hu, S. J. Moura, X. Yin, V. Pickert, “Stochastic Control of Smart Home Energy Management with PEV Energy Storage and Photovoltaic Array,” *Journal of Power Sources*, v 333, pp. 203-212, Nov 2016. DOI: [10.1016/j.jpowsour.2016.09.157](https://doi.org/10.1016/j.jpowsour.2016.09.157)
- J23. **E. Burger**, S. J. Moura, “Recursive Parameter Estimation of Thermostatically Controlled Loads via Unscented Kalman Filter,” *Sustainable Energy, Grids and Networks*, v 8, pp. 12-25, Dec 2016. DOI: [10.1016/j.segan.2016.09.001](https://doi.org/10.1016/j.segan.2016.09.001)
- J24. B. Wang, Z. Liu, S. Li, S J. Moura, H. Peng, “State of Charge Estimation for Lithium-Ion Batteries Based on a Nonlinear Fractional Model,” *IEEE Transactions on Control Systems Technology*, v 25, n 1, pp. 3-11, Jan 2017. DOI: [10.1109/TCST.2016.2557221](https://doi.org/10.1109/TCST.2016.2557221)

- J25. S. J. Moura, F. Bribiesca Argomedo, R. Klein, A. Mirtabatabaei, M. Krstic, "Battery State Estimation for a Single Particle Model with Electrolyte Dynamics," *IEEE Transactions on Control Systems Technology*, v 25, n 2, pp. 453-468, Mar 2017. DOI: [10.1109/TCST.2016.2571663](https://doi.org/10.1109/TCST.2016.2571663)
- J26. **E. Burger**, S. J. Moura, "Generation Following with Thermostatically Controlled Loads via Alternating Direction Method of Multipliers Sharing Algorithm," *Electric Power Systems Research*, v 146, pp. 141-160, Mar 2017. DOI: [10.1016/j.epsr.2016.12.001](https://doi.org/10.1016/j.epsr.2016.12.001)
- J27. **H. E. Perez**, S. Dey, X. Hu, S. J. Moura, "Optimal Charging of Li-Ion Batteries via a Single Particle Model with Electrolyte and Thermal Dynamics," *Journal of the Electrochemical Society*, v 164, n 7, pp. A1679-A1687, June 2017. DOI: [10.1149/2.1301707jes](https://doi.org/10.1149/2.1301707jes)
- J28. **H. E. Perez**, X. Hu, S. Dey, S. J. Moura, "Optimal Charging of Li-Ion Batteries with Coupled Electro-Thermal-Aging Dynamics," *IEEE Transactions on Vehicular Technology*, v 66, n 9, pp. 7761-7770, September 2017. DOI: [10.1109/TVT.2017.2676044](https://doi.org/10.1109/TVT.2017.2676044)
- J29. **C. Le Floch**, E. C. Kara, S. J. Moura, "PDE Modeling and Control of Electric Vehicle Fleets for Ancillary Services: A Discrete Charging Case," *IEEE Transactions on Smart Grid*, v9, n 2, pp. 573-581, March 2018. DOI: [10.1109/TSG.2016.2556643](https://doi.org/10.1109/TSG.2016.2556643)
- J30. X. Wu, S. J. Moura, X. Hu, X. Yin, "Stochastic Optimal Energy Management of Smart Home with PEV Energy Storage," *IEEE Transactions on Smart Grid*, v9, n 3, pp. 2065-2075, May 2018. DOI: [10.1109/TSG.2016.2606442](https://doi.org/10.1109/TSG.2016.2606442)
- J31. **S. Park, D. Kato, Z. Gima**, R. Klein, S. J. Moura, "Optimal Experimental Design for Parameterization of an Electrochemical Lithium-ion Battery Model," *Journal of the Electrochemical Society*, v 165, n 7, pp. A1309-A1323, May 2018. DOI: [10.1149/2.0421807jes](https://doi.org/10.1149/2.0421807jes)
- J32. **H. Zhang**, S. J. Moura, Z. Hu, W. Qi, Y. Song, "A Second Order Cone Programming Model for PEV Fast-Charging Station Planning," *IEEE Transactions on Power Systems*, v33, n 3, pp. 2763-2777, May 2018. DOI: [10.1109/TPWRS.2017.2754940](https://doi.org/10.1109/TPWRS.2017.2754940)
- J33. Y. Xu, S. Colak, E. C. Kara, S. J. Moura, M. Gonzalez, "Planning for Electric Vehicle Needs by Coupling Charging Profiles with Urban Mobility," *Nature Energy*, v 3, pp. 484-493, Jun 2018. DOI: [10.1038/s41560-018-0136-x](https://doi.org/10.1038/s41560-018-0136-x)
- J34. **H. Zhang**, S. J. Moura, Z. Hu, Y. Song, "PEV Fast-Charging Station Siting and Sizing on Coupled Transportation and Power Networks," *IEEE Transactions on Smart Grid*, v9, n 4, pp. 2595-2605, July 2018. DOI: [10.1109/TSG.2016.2614939](https://doi.org/10.1109/TSG.2016.2614939)
- J35. **H. Zhang**, S. J. Moura, Z. Hu, W. Qi, Y. Song, "Joint Planning of PEV Fast-Charging Network and Distributed PV Generation Using the Accelerated Generalized Benders Decomposition," *IEEE Transactions on Transportation Electrification*, v4, n 3, pp. 789-803, Sep 2018. DOI: [10.1109/TTE.2018.2847244](https://doi.org/10.1109/TTE.2018.2847244)
- J36. M. Hao, J. Li, **S. Park**, S. J. Moura, C. Dames, "Efficient thermal management of Li-ion batteries with a passive interfacial thermal regulator based on shape memory alloy," *Nature Energy*, v3, n10, pp. 899-906, Oct 2018. DOI: [10.1038/s41560-018-0243-8](https://doi.org/10.1038/s41560-018-0243-8). **Nature Energy News & Views.**
- J37. S. Dey, **H. Perez**, S. J. Moura, "Model-based Battery Thermal Fault Diagnostics: Algorithms, Analysis and Experiments," *IEEE Transactions on Control Systems Technology*, v27, n2, pp. 576-587, Mar 2019. DOI: [10.1109/TCST.2017.2776218](https://doi.org/10.1109/TCST.2017.2776218)
- J38. Y. Wang, S. J. Moura, S. Advani, A Prasad, "Power management system for a fuel cell/battery hybrid vehicle incorporating fuel cell and battery degradation," *International Journal of Hydrogen Energy*, v44, n16, pp. 8479-8492, Mar 2019. DOI: [10.1016/j.ijhydene.2019.02.003](https://doi.org/10.1016/j.ijhydene.2019.02.003)

- J39. **C. Le Floch**, S. Bansal, C. Tomlin, S. J. Moura, M. Zeilinger, "Plug-and-Play Model Predictive Control for Load Shaping and Voltage Control in Smart Grids," *IEEE Transactions on Smart Grid*, v10, n3, pp. 2334-2344, May 2019. DOI: [10.1109/TSG.2017.2655461](https://doi.org/10.1109/TSG.2017.2655461)
- J40. **H. Zhang**, Z. Hu, **E. Munsing**, S. J. Moura, Y. Song, "Data-driven Chance-constrained Regulation Capacity Offering for Distributed Energy Resources," *IEEE Transactions on Smart Grid*, v10, n3, pp. 2713-2725, May 2019. DOI: [10.1109/TSG.2018.2809046](https://doi.org/10.1109/TSG.2018.2809046)
- J41. M. Memarzadeh, S. J. Moura, A. Horvath, "Optimizing dynamics of integrated food-energy-water systems under the risk of climate change," *Environmental Research Letters*, v14, n7, pp. 074010, July 2019. DOI: [10.1088/1748-9326/ab2104](https://doi.org/10.1088/1748-9326/ab2104)
- J42. Y. Wang, S. J. Moura, S. Advani, A Prasad, "Optimization of powerplant component size on board a fuel cell/battery hybrid bus for fuel economy and system durability," *International Journal of Hydrogen Energy*, v44, n33, pp. 18283 – 18292, July 2019. DOI: [10.1016/j.ijhydene.2019.05.160](https://doi.org/10.1016/j.ijhydene.2019.05.160)
- J43. S. Dey, **H. E. Perez**, S. J. Moura, "Robust Fault Detection of a Class of Uncertain Linear Parabolic PDEs," *Automatica*, v107, n1, pp. 502-510, Sept 2019. DOI: [10.1016/j.automatica.2019.06.014](https://doi.org/10.1016/j.automatica.2019.06.014)
- J44. H. Zhang, C. Sheppard, T. Lipman, **T. Zeng**, S. J. Moura "Charging Infrastructure Demands of Shared-Use Autonomous Electric Vehicles in Urban Areas," *Transportation Research Part D: Transport and Environment*, v78, pp. 102210, Jan 2020. DOI: [10.1016/j.trd.2019.102210](https://doi.org/10.1016/j.trd.2019.102210)
- J45. **D. Zhang**, S. Dey, H. E. Perez, S. J. Moura, "Real-Time Capacity Estimation of Lithium-Ion Batteries Utilizing Thermal Dynamics," *IEEE Transactions on Control Systems Technology*, v28, n3, pp. 992-1000, May 2020. DOI: [10.1109/TCST.2018.2885681](https://doi.org/10.1109/TCST.2018.2885681)
- J46. **T. Zeng**, H. Zhang, S. J. Moura, "Solving Overstay and Stochasticity in PEV Charging Station Planning with Real Data," *IEEE Transactions on Industrial Informatics*, v16, n5, pp. 3504 – 3514, May 2020. DOI: [10.1109/TII.2019.2955997](https://doi.org/10.1109/TII.2019.2955997)
- J47. C. Sun, J. Guanetti, F. Borrelli, S. J. Moura, "Optimal Eco-Driving Control of Connected and Autonomous Vehicles Through Signalized Intersections," *IEEE Internet of Things Journal*, v7, n5, pp. 3759-3773, May 2020. DOI: [10.1109/JIOT.2020.2968120](https://doi.org/10.1109/JIOT.2020.2968120)
- J48. **D. Zhang**, S. Dey, L. Couto, S. J. Moura, "Battery Adaptive Observer for a Single Particle Model with Intercalation-Induced Stress," *IEEE Transactions on Control Systems Technology*, v28, n4, pp. 1363-1377, July 2020. DOI: [10.1109/TCST.2019.2910797](https://doi.org/10.1109/TCST.2019.2910797)
- J49. M. Memarzadeh, S. J. Moura, A. Horvath, "Multi-agent management of integrated food-energy-water systems using stochastic games: from Nash equilibrium to the social optimum," *Environmental Research Letters*, v15, n9, pp. 0940a4, Sep 2020. DOI: [10.1088/1748-9326/abadca](https://doi.org/10.1088/1748-9326/abadca)
- J50. H. Zhang, C. J. R. Sheppard, T. E. Lipman, S. J. Moura, "Joint Fleet Sizing and Charging System Planning for Autonomous Electric Vehicles," *IEEE Transactions on Intelligent Transportation Systems*, v21, n11, pp. 4725-4738, Nov 2020. DOI: [10.1109/TITS.2019.2946152](https://doi.org/10.1109/TITS.2019.2946152)
- J51. A. Halder, K. Caluya, **B. Travacca**, S. J. Moura, "Hopfield Neural Network Flow: A Geometric Viewpoint," *IEEE Transactions on Neural Networks and Learning Systems*, v31, n11, pp 4869-4880, Nov 2020. [arXiv](https://arxiv.org/abs/2010.11097). DOI: [10.1109/TNNLS.2019.2958556](https://doi.org/10.1109/TNNLS.2019.2958556)
- J52. **L. N. Dunn**, **I. Kavvada**, **M. D. Badoual**, and S. J. Moura, "Bayesian Hierarchical Methods for Modeling Electrical Grid Component Failures," *Electrical Power Systems Research*, v189, pp. 106789, December 2020. DOI: [10.1016/j.epsr.2020.106789](https://doi.org/10.1016/j.epsr.2020.106789)

- J53. D. Zhang, L. D. Couto, S. J. Moura, "Electrode-Level State Estimation in Lithium-ion Batteries via Kalman Decomposition," *IEEE Control Systems Letters*, v5, n5, pp. 1657-1662, Nov 2021. DOI: [10.1109/LCSYS.2020.3042751](https://doi.org/10.1109/LCSYS.2020.3042751)
- J54. **Z. Zhou**, S. J. Moura, H. Zhang, X. Zhang, Q. Guo, H. Sun, "Power-Traffic Network Equilibrium Incorporating Behavioral Theory: A Potential Game Perspective," *Applied Energy*, v289, pp. 116703, May 2021. DOI: [10.1016/j.apenergy.2021.116703](https://doi.org/10.1016/j.apenergy.2021.116703)
- J55. S. Woo, S. Bae, S. J. Moura, "Pareto Optimality in Cost and Service Quality for an Electric Vehicle Charging Facility," *Applied Energy*, v 290, pp. 116779, May 2021. DOI: [10.1016/j.apenergy.2021.116779](https://doi.org/10.1016/j.apenergy.2021.116779).
- J56. T. Zeng, S. Bae, B. Travacca, S. J. Moura, "Inducing Human Behavior to Maximize Operation Performance at PEV Charging Station," *IEEE Transactions on Smart Grid*, v12, n4, pp. 3353-3363, July 2021. DOI: [10.1109/TSG.2021.3066998](https://doi.org/10.1109/TSG.2021.3066998)
- J57. D. Zhang, L. D. Couto, P. Gill, S. Benjamin, W. Zeng, S. J. Moura, "Thermal Enhanced Adaptive Interval Estimation in Battery Packs with Heterogeneous Cells," *to appear in IEEE Transactions on Control Systems Technology*. DOI: [10.1109/TCST.2021.3091108](https://doi.org/10.1109/TCST.2021.3091108)
- J58. **D. Zhang**, S. Dey, S. Tang, R. Drummond, S. J. Moura, "Battery Temperature Estimation with an Uncertain Semilinear Thermal PDE Model," *Automatica*, v133, pp. 109849, Nov 2021. DOI: [10.1016/j.automatica.2021.109849](https://doi.org/10.1016/j.automatica.2021.109849)
- J59. H. Yu, **S. Park**, A. M. Bayen, S. J. Moura, M. Krstic, "Reinforcement Learning versus PDE Backstepping and PI Control for Congested Freeway Traffic," *to appear in IEEE Transactions on Control Systems Technology*. DOI: [10.1109/TCST.2021.3116796](https://doi.org/10.1109/TCST.2021.3116796)
- J60. L. D. Couto, R. Romagnoli, S. Park, D. Zhang, S. J. Moura, M. Kinnaert, E. Garone, "Faster and Healthier Charging of Lithium-Ion Batteries via Constrained Feedback Control," *provisional acceptance to IEEE Transactions on Control Systems Technology*.
- J61. B. Haydon, J. Cole, **L. Dunn, P. Keyantuo**, T. Katopodes-Chow, S. J. Moura, C. Vermillion, "Generalized Empirical Regret Bounds for Control of Renewable Energy Systems in Spatiotemporally Varying Environments", *to appear in ASME Journal of Dynamic Systems, Measurement, and Control*.
- J62. S. Bae, Y. Kim, Y. Choi, J. Guanetti, P. Gill, F. Borrelli, S. J. Moura, "Ecological Adaptive Cruise Control of Plug-in Hybrid Electric Vehicle with Connected Infrastructure and On-Road Experiments," *to appear in ASME Journal of Dynamic Systems, Measurement, and Control*.
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- J65. A. Bafandeh, C. Vermillion, L. Dunn, S. J. Moura, "Forecast-Based Hierarchical Control Structure for Spatiotemporally Varying Systems: A Case Study in Airborne Wind Energy".
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#### **Articles in Non-Refereed Magazines or Journals**

- M1. S. J. Moura and **H. Perez**, "Better Batteries through Electrochemistry and Controls," *ASME Dynamic Systems and Control Magazine*, v 2, n 2, pp. S15-S21, July 2014.

#### **Patent**

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#### **Dissertations (as Author, Chair, or Primary Advisor)**

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- D5. C. Le Floch, "Methods for Optimal Charging of Large Fleets of Electric Vehicles," Ph.D. Thesis, Dept of Civil & Environmental Engineering, University of California, Berkeley, 2017.
- D6. E. Munsing, "Optimization Tools for Constrained Energy Markets," Ph.D. Thesis, Dept of Civil & Environmental Engineering, University of California, Berkeley, 2018.
- D7. Z. T. Gima, "Parameter Estimation in Electrochemical Li-ion Battery Models," Ph.D. Thesis, Dept of Civil & Environmental Engineering, University of California, Berkeley, 2020.
- D8. D. Zhang, "Model-based Online State and Parameter Estimation for Lithium-ion Battery Management Systems," Ph.D. Thesis, Dept of Civil & Environmental Engineering, University of California, Berkeley, 2020.
- D9. L. N. Dunn, "Data-Driven Decision Analysis in Electric Power Systems," Ph.D. Thesis, Dept of Civil & Environmental Engineering, University of California, Berkeley, 2020.
- D10. S. Park, "Techniques for Battery Management: Modeling, Estimation, Learning & Controls," Ph.D. Thesis, Dept of Civil & Environmental Engineering, University of California, Berkeley, 2020.
- D11. S. Bae, "Optimization and Control in Smart Cities: Mobility, Electrification, and Behavior," Ph.D. Thesis, Dept of Civil & Environmental Engineering, University of California, Berkeley, 2020.

### Invited Talks

*Total since arriving at UC Berkeley : >90 in total*

- C3.ai DTI | ML for a Resilient, Secure, Carbon-Free Electricity Supply Jun 2021
- Princeton-UCSB Workshop on Modern Power Grids Jun 2021
- Penn State Energy Days 2021 May 2021
- Apple Apr 2021
- MIT | Pierce Laboratory for Infrastructure Science and Engineering Mar 2021
- 2020 Virtual INFORMS Annual Meeting Nov 2020
- University of Colorado, Boulder | Renewable and Sustainable Energy Institute Nov 2020
- NextProf Nexus 2020 | Virtual Sep 2020
- General Motors Sep 2020
- Columbia University | Columbia Electrochemical Energy Center July 2020
- Oxford Battery Modeling Symposium (Virtual Conference due to COVID) March 2020
- West Bengal Transport Corporation, Kolkata, India | Workshop on Electric Mobility March 2020
- Gordon Research Conference: Batteries Feb 2020
- UCLA | MAE Seminar Dec 2019
- IEEE Conf. on Decision & Control | Workshop on Smart Society & CPHS Dec 2019
- NextProf Nexus | Georgia Tech Oct 2019
- Georgia Tech | Decision and Control Laboratory Seminar Oct 2019
- University of California, Davis | MAE Seminar May 2019
- University of California, Santa Cruz | Cyber-Physical Systems Research Center Jan 2019
- Stem Inc. Jan 2019

- LANL Grid Science Winter School & Conference | TC on Smart Grids Jan 2019
- "Smart Buildings: A Status Quo Check" Workshop | IEEE CDC Dec 2018
- IEEE Conference on Decision and Control | TC on Smart Grids Dec 2018
- Université Libre de Bruxelles (ULB) Dec 2018
- Americas International Meeting on Electrochemistry and Solid State Science Oct 2018
- ASME Dynamic Systems and Control Conf | Workshop on CAVs Oct 2018
- University of Michigan, Ann Arbor Sep 2018
- École Polytechnique | Center for Applied Mathematics (CMAP) Sep 2018
- Université Libre de Bruxelles (ULB) Sep 2018
- University of Oxford | Dept. of Engineering Science June 2018
- University of Warwick | Institute of Mathematics & Warwick Manufacturing Group June 2018
- University of Washington | Chemical Engineering Dept. Apr 2018
- Rensselaer Polytechnic Institute | Mechanical, Aerospace, Nuclear Eng. Mar 2018
- University of California, Irvine | Mechanical & Aerospace Engineering Feb 2018
- Institut Henri Poincaré | The Mathematics of Energy Jan 2018
- EDF Lab Paris-Saclay Jan 2018
- MINES ParisTech | Centre Automatique et Systèmes (CAS) Jan 2018
- Clemson University | Automotive Engineering Dept. Dec 2017
- NYU Abu Dhabi | Abu Dhabi, United Arab Emirates Nov 2017
- Stanford University | Energy Resources Engineering Dept. Oct 2017
- Carnegie Mellon University | Civil & Environmental Engineering Dept. Sep 2017
- Nuclear Engineering Colloquium | UC Berkeley Sep 2017
- Global Artificial Intelligence and Robotic Summit | Shenzhen, China Jul 2017
- Shanghai Jiaotong University | School of Mechanical Engineering Jun 2017
- Stanford University | Smart Grid Seminar May 2017
- University of Southern California | Electrical Engineering Dept. Mar 2017
- University of Electronics Science & Tech of China (UESTC) | Chengdu, China Jan 2017
- Xihua University | Chengdu, China Jan 2017
- FISITA World Automotive Congress | Busan, South Korea Sep 2016
- Korea Advanced Institute of Science & Tech. (KAIST) | Daejeon, South Korea Sep 2016
- Sogang University | Seoul, South Korea Sep 2016
- Tsinghua-Berkeley Shenzhen Institute | Shenzhen, China Jun 2016
- National University of Singapore | Singapore Apr 2016
- IBM Research Collaboratory | Singapore Apr 2016
- NYU Abu Dhabi | Abu Dhabi, United Arab Emirates Mar 2016
- Center for the Built Environment | UC Berkeley Oct 2015
- NSF Workshop on "Developing Intelligent Food, Energy, and Water Systems" Sep 2015
- Bosch LLC, Research and Technology Center | Palo Alto, CA Jul 2015
- Energy Technologies Area | Lawrence Berkeley National Lab Mar 2015
- Energy Resources Group Colloquium | UC Berkeley Mar 2015
- OhmConnect | San Francisco, CA Mar 2015
- American Control Conference Tutorial Session on Reference Governors Jun 2014
- Los Alamos National Laboratory May 2014
- Cymer | San Diego, CA May 2014
- NEC Laboratories North America | Cupertino, CA Apr 2014
- Environmental Energy Technologies Division | Lawrence Berkeley National Lab Dec 2013

- i<sup>4</sup>Energy | UC Berkeley Nov 2013
- UC Berkeley Institute of Transportation Studies | UC Berkeley Sep 2013
- Zhejiang University | Hangzhou, China Aug 2013
- International Workshop on Smart City | Hangzhou, China Aug 2013
- New Energy Vehicle Dynamic System and Control Workshop | Beijing, China Aug 2013
- Chalmers University of Technology | Gothenburg, Sweden May 2013
- Aalborg University | Aalborg, Denmark May 2013
- MINES ParisTech | Paris, France May 2013
- Carnegie Mellon University Mar 2013
- University of Michigan Feb 2013
- University of California, Davis Feb 2013
- University of California, Berkeley Feb 2013
- University of California, Santa Barbara Jan 2013
- Nest Labs | Palo Alto, CA Jan 2013
- Ohio State University Nov 2012
- University of California, Los Angeles Nov 2012
- ASME Dynamic Systems and Control Conference Semi-Plenary Oct 2012
- University of California, San Diego Oct 2012
- University of Washington Apr 2012
- Princeton University Mar 2012
- Bosch LLC, Research and Technology Center | Palo Alto, CA Jan 2012
- Tesla Motors | Palo Alto, CA Mar 2011
- University of Illinois, Urbana-Champaign Feb 2011
- California Institute of Technology Jan 2011
- Ford Motor Company | Dearborn, MI Dec 2010
- Colorado State University Dec 2010
- Syracuse University Nov 2010



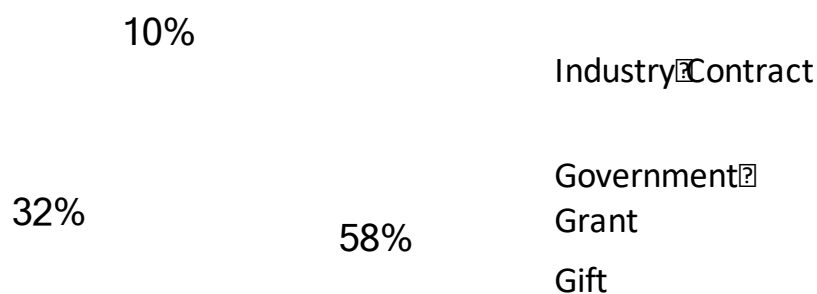
**Funding (\*last updated in Fall 2020)**

<b>Funding Agency</b>	<b>Performance Period</b>	<b>My Role</b>	<b>UCB Budget</b>	<b>Project Title</b>
Tsinghua University Education Foundation	Aug 1, 2018 – Jul 31 2020	Core PI	\$73,333	Tsinghua-Berkeley Shenzhen Institute – Year 3
CITRIS COVID	May 15 2020 - May 14 2021	Lead PI Co-PI: Raja Sengupta	\$50,000	A Data Scientific Approach to Coronavirus Surveillance: Application to Re-Opening UC Campuses
National Science Foundation	Apr 15 2020 – Apr 14 2022	Co-PI	\$104,940	SBIR Phase II: Intelligent Planning and Control Software for EV Charging Infrastructure
Total S.A. / Saft Batteries	May 15 2020 - May 14 2021	Single PI	\$144,875	State-of-X Estimation in Battery Packs with Heterogeneous Cells
Total S.A.	Jan 6 2020 – Jan 29 2021	Single PI	\$251,410	Design of EV Fleets and Charging Infrastructure
Enel X North America	Unrestricted gift	Single PI	\$10,000	In support of CE 295
Allison Transmission	Unrestricted gift	Single PI	\$10,000	In support of CE 295
Leslee & Michael Perlstein	Unrestricted gift	Single PI	\$7,250	In support of CE 186
Enel Foundation via CITRIS	Sep 30, 2019 – Sep 29, 2020	Single PI	\$50,000	Tools for Electric Bus Planning & Operation
Total S.A. / Saft Batteries	May 15 2019 – Apr 30 2020	Single PI	\$130,400	State-of-Charge / State-of-Health Estimation in Battery Packs with Heterogeneous Cells
CITRIS Seed Funding	May 1, 2019 – June 30, 2020	Co-Lead PI Lead PI: Yu Zhang (UCSC)	\$30,000	Multi-Hazard Risk Analysis to Inform Distribution Grid Upgrades for Reliability and Resilience
National Science Foundation	Mar 1, 2019 – Feb 29, 2024	Single PI	\$531,177	CAREER: Estimation and Control of Electrochemical-Thermal Battery Models: Theory and Experiments
Leslee & Michael Perlstein	Unrestricted gift	Single PI	\$5,000	In support of CE 186
Total S.A.	Aug 1, 2018 – July 31, 2020	Single PI	\$299,814	Research in the Field of Electric Vehicle Charging Stations
Tsinghua University	Aug 1, 2018 – Jul 31 2019	Core PI	\$66,666	Tsinghua-Berkeley Shenzhen Institute – Year 3

Education Foundation				
LG Chem	Feb 1, 2018 – Jan 31, 2019	Single PI	\$150,000	Rapid-Safe Battery Charging: Controls & Learning with Electrochemical Models
National Science Foundation	Jan 1, 2018 – Dec 31, 2018	Co-PI Lead PI: N. Sankar (MGL)	\$104,327	STTR: Phase 1: Intelligent Planning & Control Software for EV Charging Infrastructure
Bosch RTC	Jan 1, 2018 – Dec 31, 2018	Single PI	\$114,953	Optimal Experiment Design of Lithium Ion Battery Model Parameter Identification - Year 2
National Science Foundation	Sep 15, 2017 – Aug 31, 2020	Co-PI Lead PI: C. Vermillion (UNNC)	\$235,000	Collaborative Research: Multi-Scale, Multi-Rate Spatio-Temporal Optimal Control with Application to Airborne Wind Energy Systems
National Science Foundation	Aug 15, 2017 – Jul 31, 2020	Team Member	\$828,428	INFEWS/T1: Reducing the Environmental Impacts of FEW Systems In and Around Cities
Advanced Research Projects Agency – Energy (ARPA-E)	Mar 3, 2017 – Mar 2, 2020	Co-PI Lead PI: F. Borrelli	\$3,329,716	Predictive Data-Driven Vehicle Dynamics and Powertrain Control
Total S.A.	Aug 1, 2016 – Jul 31, 2020	Single PI	\$503,000	Optimal Energy Management for Solar Communities
Bosch RTC	Jul 1, 2016 – Jun 30, 2017	Single PI	\$95,252	Optimal Experiment Design of Lithium Ion Battery Model Parameter Identification
California Energy Commission	May 1, 2016 – Mar 1, 2018	Team Member (18 total) Lead PI: D. Kammen	\$1.5M (CEC) \$770K (cost share)	The Oakland EcoBlock - A ZNE, Low Water Use Retrofit Neighborhood Demonstration Project
California Energy Commission	Feb 1, 2016 – Jan 31, 2019	Co-PI Lead PI: T. Lipman	\$1,590,000	An Open Source, Open Architecture Platform for Plug-in Electric Vehicle Smart Charging in California Residential and Commercial Settings
Siebel Energy Institute	Sep 1, 2015 – Feb 28, 2016	Lead PI	\$50,000	Understanding the Impact of Electric Vehicle Charging on the Power Grid: An Urban Mobility Perspective

Siebel Energy Institute	Sep 1, 2015 – Feb 28, 2016	Lead PI	\$25,000	Data-Driven Techniques for Assessing Current and Future Grid Reliability
Jacobs Institute for Design Innovation	Jan 1, 2015 – Dec 31, 2015	Lead PI	\$7,000	CE 186 – Design of Cyber Physical Systems (Course Development)
Samsung Global Research Outreach (GRO)	Aug 13, 2015 – Aug 12, 2016	Single PI	\$100,000	ElectroChemical model-based Control (ECC) of Li-ion Batteries
National Science Foundation	Aug 1, 2014 – July 31, 2017	Single PI	\$294,714	Fast Charging Batteries via Electrochemical Model-based Control
France Berkeley Fund	June 1, 2014 – Nov 30, 2015	Lead PI	\$10,000	Analysis and Control of Grid-Integrated Plug-in Electric Vehicle Fleets
CITRIS Seed Funding	Jun 1, 2014 – Aug 30, 2015	Co-Lead PI w/ J.W. Park (UCD)	\$30,000	Model Predictive Control of PV-ES System utilizing Second Life Lithium Battery
California Energy Commission	May 15, 2013 – Feb 20, 2014	Lead PI	\$95,000	Estimation of Thermostatically Controlled Loads for Demand Response
<b>SUMMARY</b>				
<b>Total as Lead PI</b>	3,094,845 USD			
<b>Total</b>	11,697,255 USD   \$1.67M per year (CEE is 782k per FTE)			

### Funding Distribution as Lead PI



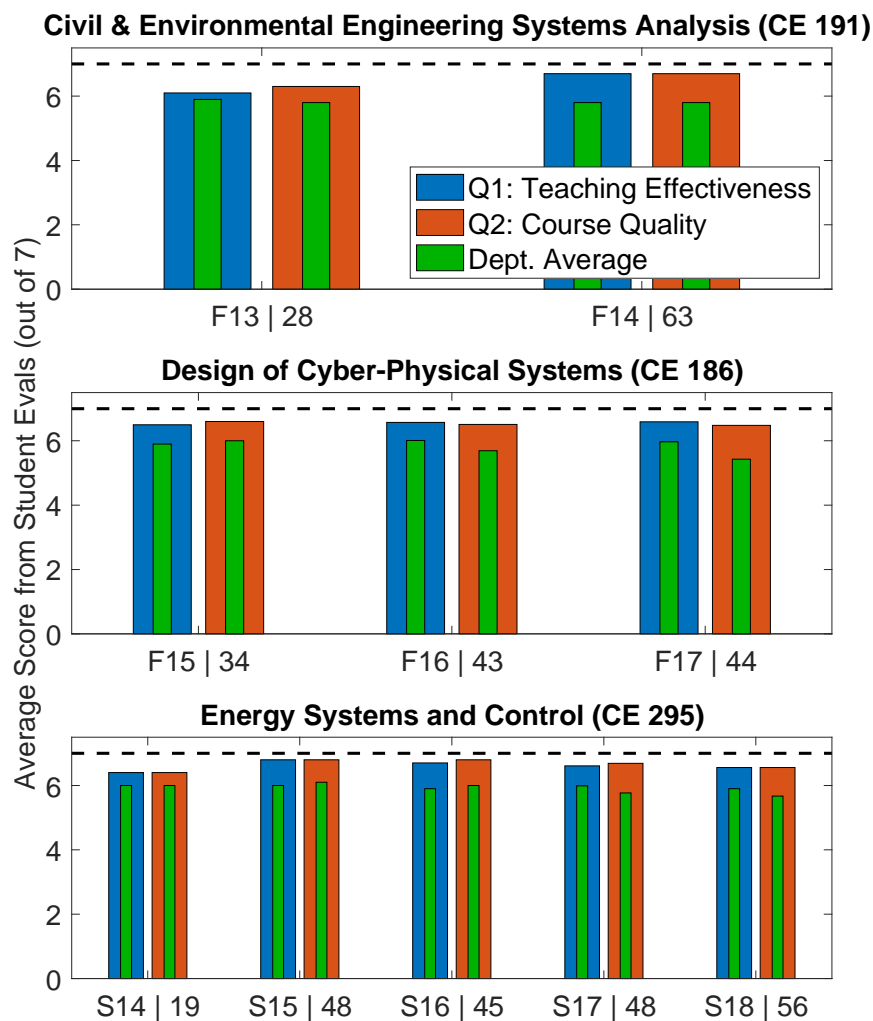
## Teaching (\*last updated in Fall 2020)

### Courses Taught at UC Berkeley during Academic Year

- Civil & Environmental Engineering Systems Analysis (CE 191) | F13, F14
- Design of Cyber-Physical Systems (CE 185) | F15, F16, F17, F18, F19
- Energy Systems and Control (CE 295) | S14, S15, S16, S17, S18, S19, S20

### UCB Student Course Evaluation Survey Results (Average Scores over 14 semesters)

	<i>My Score (out of 7)</i>	<i>Dept. Avg. (out of 7)</i>	
Teaching Effectiveness	6.528	5.932	+10% from dept. avg
Course Quality	6.488	5.778	+12% from dept. avg
Enrollment	46.21		



### Summer Courses & Enrollment

<i>Course (Program)</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>	<i>2020</i>
Renewable Energy Systems and Control (TBSI)	8	12	7		
Intro to Reinforcement Learning (TBSI)				6	TBD
Maker Design Studio (PREP/TPREP)		60	120	120	180

## **Student Researcher Mentoring**

*Hyperlinks connect to LinkedIn accounts*

### **Ph.D. Student**

- [Bertrand TRAVACCA](#)
- [Soomin Woo](#)
- [Mathilde BADOUAL](#)
- [Teng ZENG](#)
- [Dylan KATO](#)
- [Aaron Kandel](#)
- [Patrick Keyantuo](#)
- [Ioanna Kavvada](#)
- [Hassan OBEID](#)
- [Guillaume GOUJARD](#)
- [Preet GILL](#)
- [Chitra DANGWAL](#)
- [Callie CLARK](#)

### **Postdoctoral Scholars**

- [Saehong PARK](#)
- [Zhijia Huang](#)

### **Visiting Ph.D. Student**

- None currently due to COVID

### **M.S./MEng. Student**

- Deep Dayaramani
- German Perez Lopez

### **B.S. Student**

- Akshat Jain
- Kai Jin

### **Former PhD and Postdoc Mentees**

#### **Ph.D. Students**

- [Dr. Hector PEREZ](#)
- [Dr. Eric BURGER](#)
- [Dr. Caroline LE FLOCH](#)
- [Dr. Eric MUNSING](#)
- [Dr. Hongcai ZHANG](#)
- Dr. [Zach GIMA](#)
- Dr. [Laurel DUNN](#)
- Dr. [Dong ZHANG](#)
- Dr. [Sangjae BAE](#)
- Dr. [Saehong PARK](#)
- Dr. [Yiqi Zhao](#)

### Postdoctoral Scholars

- [Dr. Azad GHAFARI](#) (UC San Diego, PhD)
- [Dr. Xiaosong HU](#) (Beijing Institute of Tech. PhD)
- [Dr. Satadru DEY](#) (Clemson University, PhD)
- [Dr. Chao SUN](#) (Beijing Institute of Tech. PhD)
- Dr. [Hector PEREZ](#) (UC Berkeley PhD)
- Dr. [Hongcai ZHANG](#) (Tsinghua University PhD)
- Dr. [Milad Memarzadeh](#) (Carnegie Mellon Univ. PhD)

**NOTE: Full History of Mentees, including Visiting Scholars, MS/MEng, and BS is available upon request.**

Summary Statistics		
	<i>Currently</i>	<i>Total</i>
<i>PhD</i>	13	24
<i>Postdoc</i>	2	9
<i>Visiting PhD</i>	0	16
<i>MS/MEng</i>	8	19
<i>BS</i>	5	23
<i>TOTAL</i>	28	91
<i>Women</i>	13	25
<i>URM</i>	5	13

## **Society Memberships**

### **American Society of Mechanical Engineers (ASME)**

Energy Systems Technical Committee, DSCD (2012 – present)

Chair (2020 – present)

Vice-Chair (2018 – 2020)

Secretary (2016-2018)

Publicity (2014-2016)

Member (2012 – present)

Student Member, Dynamic Systems and Control Division (DSCD) (2002 – 2011)

### **Institute of Electrical and Electronics Engineers (IEEE)**

Technical Committee on Smart Cities, CSS (2014 – present)

Technical Committee on Smart Grids, CSS (2013 – present)

Technical Committee on Automotive Controls, CSS (2012 – 2014)

Student Member, Control Systems Society (2008 – present)

### **Society of Hispanic Professional Engineers (SHPE)**

University of Michigan, Student Chapter (2006 – 2011)

UC Berkeley Hispanic Engineers & Scientists, Student Chapter (2002 - 2006)

Administrative Vice-President (2004-2006)

### **Conference Committee Service**

- Program Committee, 2014 American Control Conference in Portland, OR USA
- Program Committee, 2017 ACM BuildSys in Delft, Netherlands
- Program Committee, 2020 American Control Conference in Denver, CO USA

### **Invited/Special/Tutorial Sessions Organized at Conferences**

- “Energy Systems Modeling and Estimation” (Invited Session, ACC14), Organizer
- “Energy Systems Optimization” (Invited, ACC14), Co-Chair
- “Energy Storage in Transportation Applications: Modeling and Identification of Li-ion Batteries” (Invited, DSCC14), Chair
- “Energy Storage: Grid Applications” (Invited, DSCC14), Chair
- “The Future of Battery Controls” (Special, ACC15), Chair
- “Battery Management Systems” (Invited, DSCC15), Chair
- “Battery Modeling for Control and Estimation Problems” (Tutorial, CDC15), Co-Chair
- “Control Strategies for Renewable Energy Integration into the Smart Grid: Wind Applications” (Invited, ACC16), Co-Chair
- “Control Strategies for Renewable Energy Integration into the Smart Grid: Distribution Systems and Microgrids” (Invited, ACC16), Co-Chair
- “Battery and Oil & Gas Systems,” (Invited, DSCC16), Co-Chair
- “Electrochemical Modeling and Diagnostics of Li-ion Batteries” (Invited, ACC17), Co-Chair
- “Estimation and Control of Batteries” (Invited, ACC18), Co-Chair
- “Control, Optimization, and Diagnostics of Energy Storage Systems” (Invited, ACC19), Co-Chair
- “Estimation and Identification of Energy Storage Systems” (Invited, ACC19), Co-Chair
- “A Tutorial on Battery Systems and Control” (Tutorial, ACC19), Co-Chair
- “Renewable and Smart Energy Systems” (Invited, DSCC19), Co-Chair
- “Modeling and Identification of Energy Storage Systems” (Invited, ACC20), Co-Chair
- “Estimation and Diagnostics of Batteries” (Invited, ACC20), Co-Chair
- “Control and Estimation of Batteries” (Invited, ACC20), Co-Chair
- “Autonomous Energy Systems: Estimation, Modeling, and Control” (Invited, ACC20), Co-Chair

## Academic Service

### *Editorial Boards*

- ASME Journal of Dynamical Systems Measurement and Control, 2019-present
- SAE International Journal of Connected and Automated Vehicles, 2017-2018

### *CEE Department*

- Strategic Planning Committee, 2019 – 2020
- Faculty Search Committee “Future Infrastructure Systems,” 2018 - 2019
- ECIC Admissions Officer, 2015 – 2018
- SYS Admissions Officer, 2017 – 2018
- Faculty Search Committee “Engineering for Sustainability,” 2014 – 2015
- Systems Program Graduate Advisor, 2014 – 2015
- Curriculum Committee, 2013 – 2014
- Equity and Inclusion Committee, 2014 – present

### *College of Engineering*

- Energy Engineering Advisor, 2015 – present
- Tsinghua-Berkeley-Shenzhen Institute (TBSI), 2015 – present
- Center for Access to Engineering Excellence, 2013 – present
- Jacobs Institute for Design Innovation Director’s Council, 2016 – present
- ITS Strategic Planning Committee, 2017-2018

### *UC Berkeley Campus*

- Committee on Undergraduate Scholarships, Honors, and Financial Aid, 2014

### *Technical Advisory Boards*

- Enviome Research Pvt Ltd, 2020 – present
- Zitara, 2020 – present
- Microgrid Labs, 2018 - present
- eCalCharge, 2016 – present
- eLum, 2015 – present
- CEC Project: “Demonstration of Community Scale Low Cost Highly Efficient PV and Energy Management System,” lead by UC Davis, 2015 – 2018

### *Reviewer*

- **Funding Agencies:** National Science Foundation (NSF); Croatian Science Foundation (CSF); Nebraska Research Initiative (NRI); Kansas NSF EPSCoR.
- **Publishers:** Springer, Wiley & Sons, Cambridge University Press
- **Journals:** Applied Energy; ASME Journal of Dynamics Systems, Measurement, and Control; Automatica; Electrochimica Acta; Energies; European Journal of Control; Control Engineering Practice; IEEE Transactions on Automatic Control; IEEE Trans. on Control Systems Technology; IEEE Trans. on Industrial Electronics; IEEE Trans. on Intelligent Transportation Systems; IEEE/ASME Trans. on Mechatronics; IEEE Trans. on Power Systems; IEEE Trans. on the Smart Grid; IEEE Trans. on Sustainable Energy; IEEE Trans. on Vehicular Technology; IET Intelligent Transport Systems; International Journal of Control; International Journal of Electrical Power & Energy Systems; International Journal of Powertrains; Journal of the Electrochemical Society; Journal of Energy Storage; Journal of Fluids and Structures; Journal of Power Systems; Journal of Robust & Nonlinear Control; Nature Energy; Proceedings of the IEEE; Proceedings of the National Academy of Sciences; Science Advances; Sensors; Simulation Modeling Practice and Theory; Transportation Research – Parts C & D.



## **Appointments and Experience**

### **University of California, Berkeley**

*Chair of Engineering Science*

Jul 2021 - present

*Clare and Hsieh Wen Shen Endowed Distinguished Professorship*

Jul 2020 – Jun 2025

*Associate Professor, Director of eCAL*

Jul 2019 – present

*Assistant Professor, Director of eCAL*

Jul 2013 – Jun 2019

### **MINES ParisTech – Paris, France**

Mar 2013 – Jun 2013

*Visiting Researcher*

### **University of California, San Diego**

Jul 2011 – Jun 2013

*UC President's Postdoctoral Fellow*

### **University of Michigan – Ann Arbor, Michigan**

Aug 2006 – Apr 2011

*Graduate Student Research Assistant*

### **DaimlerChrysler Corporation – Detroit, Michigan**

May 2006 - Aug 2006

*Summer Intern, Electrical Engineering - Vehicle Engineering*

### **Ford Motor Company - Dearborn, Michigan**

May 2005 - Aug 2005

*Summer Intern, Manufacturing & Quality*

### **Southern California Edison - Rosemead, California**

Jun 2004 - Aug 2004

*Professional Aide, Staff Engineering*

### **BIS Computer Solutions, Inc. - La Crescenta, California**

Jun 2003 - Jul 2003

*Sales Assistant, Computer Technician*