

**The MathWorks, Inc**  
*Engineer | Engineering Development Group*

**Natick, MA**  
*2019–Present*

Experience.....

**MINES ParisTech** **Paris, France**  
*Visiting Researcher | Centre Automatique et Systèmes* *2018*

1. State and parameter estimation for thermoacoustic oscillation in the Rijke tube
  2. Observer design for coupled ODE-PDE and PDE-PDE systems for well-bore and reservoir drilling models
- Advisor: Florent Di Meglio

**Robert Bosch GmbH** **Sunnyvale, CA**  
*Controls Research Intern* *2018*

(3 months) State and parameter estimation for a thermal model of lithium-ion batteries; finite-time estimation, input estimation and robustness analysis

**Robert Bosch GmbH** **Palo Alto, CA**  
*Controls Research Intern* *2017*

(3 months) Offline parameter estimation algorithms for electrochemical models of lithium-ion batteries via Orthogonal Distance Regression

**University of California, Berkeley** **Berkeley, CA**  
*Visiting Researcher | Energy, Controls, and Application Lab* *2017*

1. Boundary observer design for diffusion-reaction equations robust to measurement noise in the ISS sense.
  2. Boundary observer design for radial diffusion equations with coefficients depending on the state spatial average
- Advisor: Scott Moura

**Robert Bosch GmbH** **Palo Alto, CA**  
*Controls Research Intern* *2015*

(3 months) State and online parameter estimation algorithms for electrochemical models of lithium-ion batteries via Kalman Filter (KF,EKF,UKF)

**Mabe, Technology Center** **Querétaro, México**  
*Electrical Engineering Intern* *2014*

- (5 months) 1. Modeling and identification of thermoelectric modules for energy harvesting
- (3 months) 2. Design of an AC motor-drive circuit board with power factor correction

**Nikan** **Querétaro, México**  
*Software Engineering Intern* *2014*

(5 months) Microcontroller programming for educational circuit board

**CINVESTAV** **Querétaro, México**  
*Undergraduate Researcher | Mathematics Department , support from CONACYT* *2012–2014*

Spectral parameter power series (SPPS) method for complex PT-Symmetric Sturm-Liouville problems.  
Advisor: Vladislav Kravchenko

**Tecnológico de Monterrey** **Querétaro, México**  
*Undergraduate Researcher | Mechatronics Department* *2012–2014*

Optimal control for DC motors and switched-mode power converters  
Advisor: Aarón Sariñana Toledo

## Education.....

### **Ph.D. in Dynamic Systems and Control**

**San Diego, CA**

*University of California, San Diego*

*2014–2019*

Mechanical and Aerospace Engineering Department

Dissertation: State Estimation for Diffusion-Reaction PDEs with Applications to Lithium-ion Batteries

**Advisor: Miroslav Krstić**

*GPA – 4.0/4.0*

#### o **Graduate Coursework:**

##### o Control and Dynamic Systems:

Control of Distributed Parameter Systems (A), Parametric System Identification (A), Linear Systems Theory (A+), Optimal Estimation (A), Nonlinear Systems (A+), Linear Control Design (A+), Mathematical Analysis for Applications (A+), Optimal Control (A+), Nonlinear Control (A+), Real Analysis for Applications (A+)

##### o Mathematics:

Partial Differential Equations [I] (A), Mathematical Statistics (S), Mathematics of Finance (S)

##### o Electrical Engineering

Modeling, Simulation, and Identification of Battery Dynamics (A), Power Electronics for Electric Drive Vehicles (A), Battery Management and Control (A), Adjustable-Speed AC Drives (A), Statistical Learning(S)

##### o Economics

Intertemporal Asset Pricing Theory (S)

### **G.C. in Electric Drivetrain Technology**

**Online**

*University of Colorado (Colorado Springs and Boulder)*

*2015–2016*

Program contact: Gregory L. Plett

*GPA – 4.0/4.0*

### **B.S. in Mechatronics Engineering**

**Querétaro, México**

*Tecnológico de Monterrey, Campus Querétaro*

*2010–2014*

Mención Honorífica de Excelencia (with Highest Honors)

*GPA – 97/100*

## Awards.....

**2018:** Chateaubriand Fellowship | Embassy of France

**2015-2019:** UC MEXUS-CONACYT Doctoral Fellowship

**2015:** GATE fellowship | University of Colorado (Colorado Springs and Boulder)

**2014-2017: Powell Fellowship** | University of California, San Diego

**2014:** CENEVAL National Award

**2010-2014:** Telmex Foundation Scholarship

**2010-2014:** Academic Talent Scholarship | Tecnológico de Monterrey

**2011:** Comisión Nacional de Energía Atómica Scholarship | Balseiro Institute in Argentina (declined)

## Coding Languages & Environments.....

Matlab, Simulink, Mathematica, C/C++and Python

## Publications and Talks.....

### **Journals:**

S. Tang,L. Camacho-Solorio, Yebin Wang, M. Krstic, "[State-of-Charge Estimation from a Thermal-Electrochemical Model of Lithium-Ion Batteries](#)", Automatica 83 (2017): 206-219.

- L. Camacho-Solorio, R. Vazquez, and M. Krstic, "Boundary Observers for Coupled Diffusion- Reaction Systems with Prescribed Convergence Rate", submitted.
- L. Camacho-Solorio, I. Karafyllis, M. Krstic, ""State Estimation of Diffusion-Reaction Equations via a Pair of Observers and Delayed Measurements", in preparation.
- L. Camacho-Solorio, Florent, ""State Estimation of Diffusion-Reaction Equations via a Pair of Observers and Delayed Measurements", in preparation.

#### Conference:

- L. Camacho-Solorio and A. Sarinana-Toledo "I-LQG Control of DC-DC Boost Converters", International Conference on Electrical Engineering, Computing Science and Automatic Control (CCE), 2014.
- L. Camacho-Solorio, R. Klein, A. Mirtabatabaei, M. Krstic and S. Moura, "State Estimation for an Electrochemical Model of Multiple Material Lithium-Ion Batteries" , ASME Dynamic Systems and Control Conference (DSCC), 2016.
- L. Camacho-Solorio, R. Vazquez and M. Krstic "Boundary Observer Design for Coupled Reaction-Diffusion Systems with Spatially-Varying Coefficients", American Control Conference (ACC), 2017.
- S. Koga, L. Camacho-Solorio, and M. Krstic "State Estimation for Lithium-Ion Batteries with Phase Transition Materials" ASME Dynamic Systems and Control Conference(DSCC), 2017
- L. Camacho-Solorio, S. Moura and M. Krstic, "Boundary Observer Design for Radial Diffusion Equations with Coefficients Depending on the State Spatial Average", American Control Conference (ACC) 2018
- L. Camacho-Solorio and M. Krstic, "Boundary Observers for the Expected Value of a Randomly Switching Reaction-Diffusion PDE", Conference on Decision and Control (CDC) 2018
- L. Camacho-Solorio, N. Velmurugan, F. Di Meglio and M. Krstic, "Observer Design for a Coupled ODE-PDE System from a Wellbore Reservoir Drilling Model", submitted

#### Talks and Presentations:

- L. Camacho-Solorio, "Spectral Parameter Power Series for complex PT-Symmetric Sturm-Liouville problems", Undergraduate Research Project, CINVESTAV, 2014
- S. Tang, L. Camacho-Solorio, Y. Wang, M. Krstic, "State-of-Charge Estimation of Lithium-ion Batteries Modeled by a Coupled PDE-ODE System", SIAM Conference on Control and Its Applications (CT17), 2017
- L. Camacho-Solorio, R. Vazquez and M. Krstic, "Boundary Observers for Coupled Reaction-diffusion Systems with Applications to Lithium-ion Batteries", SIAM Conference on Control and Its Applications (CT17), 2017
- L. Camacho-Solorio, S. Moura and M. Krstic, "Boundary Observer Design for Radial Diffusion-Reaction Equations in the Presence of Measurement Noise", 33th Southern California Control Workshop, 2017

#### Review Service.....

Automatica, IEEE Transactions on Automatic Control, International Journal of Control, International Journal of Adaptive Control and Signal Processing, IEEE Control and Systems Technology, American Control Conference, Control and Decision Conference

#### Community Service.....

**2014:** Education Corps | Tutor

**2014:** Jacobs Undergraduate Mentoring Program | Mentor

**2012–2013:** Prepanet Community High School Program | Tutor