

J. CARLOS ZAVALA J.

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Education

University of California, Berkeley PhD Candidate, Control Systems Engineering. Advisor: Karl Hedrick. Research: Control and Reduction of Combustion Engine Emissions, Cold Start.	May-2007
University of Sheffield, England, UK MSc in Control Systems Engineering . Thesis: Automotive Driveline Control Strategies	2001
National Autonomous University of Mexico BSc in Mechanical and Electrical Engineering	1996

Work Experience

University of California, Berkeley, Department of Mechanical Eng. Research Assistant. Prepared a new test cell for development of engine controllers. Developed strategies for reduction of emissions during the cold start. Implemented real time fuel injection controllers for combustion engines in a new time-triggered language (Giotto).	2003-present
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Michelin Tires 2002

Project Engineer: Planned and coordinated projects to restart operations of manufacturing plant.

ABB (Asea Brown Boveri) 1996 – 2000

Project Manager: Generated plans and organized robotic cell projects. Interfaced customers to coordinate execution of projects. Solved unexpected issues during execution of projects. Revised timelines. Negotiated changes to contracts.

Service Engineer: Programmed PLCs. Programmed robot for arc welding, spot welding, seal dispensing and material handling applications. Repaired robots and peripherals. Supported start-up of robot production line in Lansing, Michigan (USA) for five months. Drew and designed electrical interfaces between robots and peripherals.

Trainee: Developed programs to automate the search of data in files. Supported the start up of ISO 9000 project in the Robotics department.

Skills

Design of control for physical systems. Real time and embedded systems design. Hybrid system analysis. Data analysis. Developing research plans. Organizing teams, project execution. Work under timing constraints. MEMS design.

Software: highly proficient at C,C++, Java, Matlab, Simulink, WindRiver Tornado, MPC555 Programming, Pascal. PLC programming. Other: Mathematica and Autocad, Pspice, KUO and CC simulation. MS Project, Word and Excel.

Languages: Fluent in Spanish. Basic knowledge of German.

Tutored undergraduate research at UC, Berkeley.

Selected Publications and Conferences

- J. Carlos Zavala and J. Karl Hedrick. *Effect of Microprocessor Features in Control Loops modeled in Simulink*. ASME International Mechanical Engineering Congress and Exposition, November 18th, 2004. Anaheim, L.A.
- J. Carlos Zavala, Pannag Sanketi, Daniel Lamberson and J. Karl Hedrick, *Model-Based Real-Time Embedded Control Software for Automotive Torque Management*. RTAS Workshop on Model Driven Embedded Systems. Ontario, Canada. May 25th, 2004.
- J. Carlos Zavala, Dietmar Günther, Pannag Sanketi, Mark Wilcutts, Karl Hedrick, *Fuel Dynamics Model for Engine Coldstart*, ASME International Mechanical Engineering Congress and Exposition, Chicago. November, 2006.
- Pannag R Sanketi, J. Carlos Zavala, J. K. Hedrick, *Automotive Engine Hybrid Modeling and control for reduction of hydrocarbon emissions*, International Journal of Control, Vol. 79, Num. 5, May 2006.pp 449-464.
- Stewart, P. G., J. C. Zavala, P. J. Fleming (2005). "Automotive drive by wire design by multiobjective techniques." Control Engineering Practice 13: 257-264
- Arkadeb Ghosal, J. Carlos Zavala, Marco Sanvido and J. Karl Hedrick, *Implementation of AFR controller in an Event-driven Real-time Language*. Proc.of American Control Conference, Portland, Oregon, 8-10 June, 2005.

Other Activities

Co-founder and first president of the Association of Mexican Students at Cal (Mexcal). 2004-2005.

Developed and implemented a re-forestation plan for a fragile and endangered forest area near Mexico City.

Sports: running (three half marathons), cycling (two century rides) and swimming. Two sprint triathlon races.

Tutoring High School students in underserved areas.