Froylan E. Sifuentes

2707 Hillegass Avenue ~ Berkeley, CA 94705

(510)-990-7426 **froy@berkeley.edu**

Education

UNIVERSITY OF CALIFORNIA - BERKELEY

M.S., 2011. Currently PhD Candidate (Thesis Advisor: Duncan Callaway) *2009-Present*
Energy and Resources Group
Current GPA: 3.9/4.0

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

B.S. in Chemical Engineering (Advisor: Jefferson Tester) *2005-2009*
Chemistry Minor, Political Science Minor
Cumulative GPA: 4.6/5.0

Relevant Courses

UC BERKELEY

- Electricity Energy Systems; Energy and Environmental Markets; Energy Regulation
- Signal Processing; Linear Algebra, Probability and Stochastic Processes, Convex Optimization; Advanced Control Systems, Modeling and Analysis of Stochastic Processes
- Advanced Mandarin

MIT

- Sustainable Energy, Engineering for Sustainability, Fluid Mechanics, Transport Processes, Chemical Kinetics and Reactor Design
- Computers and Engineering Problem Solving (*Java, Computer Modeling*), MATLAB
- Global Warming, Energy Policy

Research

NATIONAL SCIENCE FOUNDATION FELLOW **UC BERKELEY**

Understanding the demand response resource potential to aid wind integration in China *Aug 2011-Present*

- Gathering electricity consumption sectors data from Chinese national databases
- Using DRQAT, an LBNL tool, to calculate demand response potential from the office sector
- Building up models to calculate potential of thermostatically controlled residential loads

GRADUATE STUDENT RESEARCHER **UC BERKELEY**

Quantifying the challenges of helping the integration of wind power using fast timescale direct control under Professors Callaway and Auslander *Sept 2009 –May 2011*

- Built physically-based computer models of thermostatically controlled loads in MATLAB
- Simulated control and investigated system dynamics of loads under a demand response regime
- Investigated the challenges and opportunities for direct control associated with existing and planned communications platforms
- Investigated how to offset production variability from renewable energy sources using our simulated control strategies

Publications

Sifuentes, F. and Keep, T. "Estimating Demand Response Potential of Buildings Using a Predictive HVAC Model", Proceedings of the ASME 2014 Power Conference, Baltimore MD
Keep, T.M., **Sifuentes, F.E**., Auslander, D.M. and Callaway D.S. "Using load switches to control aggregated electricity demand for load following and regulation," Proceedings of the 2011 IEEE Power & Energy Society General Meeting, Detroit MI.

Awards

National Science Foundation Graduate Research Fellowship *Aug 2011-Present*
Boren Fellowship *Aug 2012-Aug 2013*
UC Berkeley Chancellor's Fellowship *Aug 2009-Aug 2011*

Froylan E. Sifuentes

2707 Hillegass Avenue ~ Berkeley, CA 94705

(510)-990-7426 **froy@berkeley.edu**

International Experience

RESEARCHER DEMAND RESPONSE AND SMART GRID **BEIJING, CHINA**
Tsinghua University *Summer 2014*

- Studied an Electric Vehicle – Grid model under Prof. Hu Zechun from Tsinghua University to refine assumptions into own model
- Started collaboration with Professors at the Architecture and Electrical Engineering for joint papers to be published

RESEARCHER IN SGERI **BEIJING, CHINA**
State Grid Energy Research Institute (SGERI) *Summer 2011, Spring 2013*

- Studied a model under Prof. Hu Zhaoguang from Beijing Jiaotong University used to calculate electricity planning costs
- Implemented the model to estimate system wide costs of achieving 33% Renewable Portfolio Standards (RPS) state goals by 2020 with and without demand response programs
- Served as in-house consultant to SGERI researchers on issues of energy, demand response in California

JAVA INSTRUCTOR POSITION FOR MEET **JERUSALEM, ISRAEL**
Middle East Education through Technology (MEET) *Summer 2008 and 2009*
brings Palestinian and Israeli students to learn computer science and leadership

- Lectured on the basics of the Java programming language
- In charge of a recitation group of 10 students from both nationalities
- Promoted conversation between Palestinian and Israeli students
- Helped improve the curriculum for the first year students

SUMMER AND WINTER MIT PSC FELLOWSHIP **SANTA ANA, ECUADOR**
Community Water Treatment in the Ecuadorian Amazon *2006-2007*

- Trained three indigenous people to take care of the maintenance of their water system
- Worked with the existing water board to improve financial accounting and leadership skills
- Organized and ran health and water workshops in the community
- With the water board, coordinated meeting with other communities' boards

Leadership

MIT LATINO CULTURAL CENTER **CAMBRIDGE, MA**
Community Service Chair of group working on raising awareness about Latino/Hispanic/Mestizo culture in MIT *2008-2009*

- In charge of communication with the Boston Intercollegiate Latin American Net
- Coordinated events with other Latino/Latin America issues groups
- Coordinated community service opportunities in the Boston Area

SHARE A VITAL EARTH **CAMBRIDGE, MA**
President of student environmental group at MIT *2005-2008*

- Organized campaigns to promote energy-saving at MIT
- Part of organizing team of Earth Day events at MIT
- Helped organize MIT-wide Recyclemania
- Co-organizer a three-day school wide symposium on climate change with 11 events/discussions with 12 professors and graduate students, around 350 attendants

Languages

Natural: English (*Native*), Spanish (*Native*), Chinese Mandarin (*Advanced*)
Computer: Java, MATLAB/Simulink, Python, R, SIGMA