

Patricia Hidalgo-Gonzalez

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EDUCATION

University of California, Berkeley, CA
Ph.D., Energy and Resources Group
December 2019 (Expected)
Advisors Dr. Daniel Kammen and Dr. Claire Tomlin

University of California, Berkeley, CA
M.S., Electrical Engineering and Computer Sciences
December 2019
Advisor Dr. Claire Tomlin

University of California, Berkeley, CA
M.S., Energy and Resources Group
May 2016
Advisor Dr. Daniel Kammen

Pontificia Universidad Católica de Chile, Santiago, Chile
Industrial and Electrical Engineering (Six year program)
September 2012
Highest Honors
Academic ranking: 11 out of 376 students (top 3%)

University of Arizona, Tucson, AZ
“String-Level (kW-Scale) IV Curves From Different Types Of Modules Under Partial Shade”
Undergraduate thesis research under Dr. Alexander Cronin and Dr. David Watts
January 2012 - April 2012

University of California, Berkeley, CA
Industrial Engineering and Operations Research
Exchange Abroad Program (EAP)
January 2011 - May 2011

HONORS AND AWARDS

Siebel Scholar in Energy Science
The Siebel Foundation and the University of California, Berkeley
2019-2020

Rising Stars in Electrical Engineering and Computer Sciences
Academic Career Workshop for Women in Electrical Engineering and Computer Sciences
2019

Outstanding Graduate Student Instructor
University of California, Berkeley
2019

National Science Foundation Graduate Research Fellowship Program (NSF GRFP)
April 2015

Graduate Opportunity Program (GOP) Award
University of California, Berkeley
Covered tuition and stipend during 2014-2015

Offers to enroll in doctoral studies at UC Berkeley, MIT and Carnegie Mellon University
January 2014

“Research Abroad in Science and Technology”
Covered all expenses of the visit to the University of Arizona
Comisión Nacional de Investigación Científica y Tecnológica (CONICYT), Santiago, Chile
January 2012 - April 2012

“Study Abroad (at UC Berkeley) Scholarship”
Pontificia Universidad Católica de Chile, Santiago, Chile
Covered all expenses to attend to UC Berkeley in Spring 2011

“Admitted with Honors Scholarship”
Pontificia Universidad Católica de Chile, Santiago, Chile
Covered tuition during first academic year
March 2006 - December 2006

RESEARCH EXPERIENCE

Graduate Student Researcher
Electrical Engineering and Computer Sciences
University of California, Berkeley, CA, U.S.
PI: Dr. Claire Tomlin
January 2018 - Present

Graduate Student Researcher for California Energy Commission
Energy and Resources Group
University of California, Berkeley, CA, U.S.
Co-developed Stochastic SWITCH-WECC, a power system capacity expansion model under climate change uncertainty.
PI: Dr. Daniel Kammen and Dr. Max Wei
August 2015 - December 2017

Power Systems Engineer and Policy Consultant
Natural Resources Defense Council
Co-developed SWITCH-Chile, a power system capacity expansion model
Technical report and presentation for Chilean power system operators, policy makers and stakeholders.
March 2014 - July 2014

Research Staff
Energy and Resources Group
University of California, Berkeley, CA, U.S.
Professor Dr. Daniel Kammen
January 2013 - December 2013

Visiting Scholar
Department of Physics
University of Arizona, Tucson, AZ, U.S.
Professor Dr. Alexander Cronin

January 2012 - June 2012

Undergraduate Research Assistant

Energy and Resources Group
University of California, Berkeley, CA, U.S.
Professor Dr. Daniel Kammen
June 2011 - August 2011

Undergraduate Research Assistant

Electrical Engineering Department
School of Engineering
Pontificia Universidad Católica de Chile, Santiago, Chile
Professor Dr. David Watts
March 2010 - July 2010

**TEACHING
EXPERIENCE**

Optimization Models in Engineering (EE227AT) Head Graduate Student Instructor

Electrical Engineering and Computer Sciences
University of California, Berkeley, CA, U.S.

Professor: Alexandre Bayen and Laurent El Ghaoui

Duties: 2 hours of discussion per week for 280+, students, discussion design, management of four graduate student instructors and overseeing their tasks (grading, homework and exam design), evaluations' logistics, correspondence with students, and 1 office hour.

August 2018 - December 2018

Optimization Models in Engineering (EE227AT) Graduate Student Instructor

Electrical Engineering and Computer Sciences
University of California, Berkeley, CA, U.S.

Professor: Laurent El Ghaoui

Duties: 1 hour of discussion per week for 80, students, discussion design, test grading, and homework design, 2 office hours.

January 2018 - May 2018

Linear Algebra for Engineering Lecturer

Department of Mathematics
Pontificia Universidad Católica de Chile, Santiago, Chile

Duties: 4 hours of class per week for 120 students, advise two teaching assistants

August 2012 - December 2012

Linear Algebra for Engineering Teaching Assistant

Department of Mathematics
Pontificia Universidad Católica de Chile, Santiago, Chile

Professors: Dr. Carolina Becerra, M.S. Carla Barrios and Dr. Angel Carocca

Duties: 1.3 hours of class per week for 120 students and test grading

Teaching evaluation: Highest score during all six semesters

March 2008 - December 2010

FONDEF Project's Teaching Assistant

"Remote Laboratory for teaching with new technologies"

Department of Mechanics and Metallurgic Engineering
School of Engineering

Pontificia Universidad Católica de Chile, Santiago, Chile

Professor Dr. Luciano Chiang

November 2007 - December 2007

PUBLICATIONS, TECHNICAL REPORTS AND POLICY BRIEFS, **Hidalgo-Gonzalez, P.**, Dobbe, R., Karagiannopoulos, S., Henriquez-Auba, R., Hug, G., Callaway, D. S., and Tomlin, C.J. “Learning to Control in Power Systems: Design and Analysis Guidelines for Concrete Safety Problems” (In preparation)

Hidalgo-Gonzalez, P., Johnston, J.L., Kammen, D.M., “2030/2050 power system planning path dependency in western North America” (In revision)

Hidalgo-Gonzalez, P., Henriquez-Auba, R., Callaway, D. S., and Tomlin, C.J. “Frequency Regulation using Sparse Learned Controllers in Power Grids with Variable Inertia due to Renewable Energy” (Accepted at CDC 2019)

Anderson, S., **Hidalgo-Gonzalez, P.**, Dobbe, R., and Tomlin, C.J. “Distributed Model Predictive Control for Autonomous Droop-Controlled Inverter-Based Microgrids” (Accepted at CDC 2019)

Hidalgo-Gonzalez, P., Henriquez-Auba, R., Callaway, D. S., and Tomlin, C.J. “Frequency Regulation using Data-Driven Controllers in Power Grids with Variable Inertia due to Renewable Energy” In 2019 IEEE PES General Meeting (To appear)

M. Wei, S. Raghavan, **P. Hidalgo-Gonzalez**, R. Henriquez-Auba, D. Millstein, M. Hoffacker, R. Hernandez, E. Ruffini, B. Tarroja, A. Agha Kouchak, J. Johnston, D. Kammen, J. Szinai, C. Shepard, A. Gopal, K. Sun, T. Hong, and F. Langer. 2019. “Building a Healthier and More Robust Future: 2050 Low-Carbon Energy Scenarios for California”. California Energy Commission. Publication Number: CEC-500-2019-033.

Hidalgo-Gonzalez, P., Dobbe, R., Henriquez-Auba, R., Callaway, D. S., and Tomlin, C.J. “Frequency Regulation in Hybrid Power Dynamics with Variable and Low Inertia due to Renewable Energy”. In 57th IEEE Conference on Decision and Control, 2018

Hidalgo-Gonzalez, P.L., Johnston, J.L., and Kammen, D.M., “Supplementary analysis for CAISO SB 350 regionalization study” (Policy brief), Memo prepared per CAISO’s request, July 2016, Berkeley, CA, U.S.

Carvalho, J.P., **Hidalgo-Gonzalez, P.L.**, and Kammen, D.M., “Envisioning a Sustainable Chile: Five findings about the future of the Chilean electricity and energy system” (Policy brief), Natural Resources Defense Council, 2014, Washington, D.C., U.S.

Hidalgo-Gonzalez, P.L., Brooks, A.E., Kopp, E.S., Lonij, V.P., and Cronin, A.D., “String-Level (kW-Scale) IV Curves From Different Types Of Modules Under Partial Shade”, 38th IEEE Photovoltaic Specialists Conference 2012, Austin, TX, U.S.

Kopp, E.S., Lonij, V.P., Brooks, A.E., **Hidalgo-Gonzalez, P.L.**, and Cronin, A.D., “IV curves and visual inspection of 250 PV modules deployed over 2 years in Tucson”, 38th IEEE Photovoltaic Specialists Conference 2012, Austin, TX, U.S.

TALKS

Hidalgo-Gonzalez, P., Dobbe, R., Henriquez-Auba, R., Callaway, D. S., and Tomlin, C.J. “Frequency Regulation in Hybrid Power Dynamics with Variable and Low Inertia due to Renewable Energy”. In 57th IEEE Conference on Decision and Control, December 2018

Hidalgo-Gonzalez, P. “Invited Lecture on Applications of Convex Optimization to

Energy Systems”. Course: EE127/227AT Optimization Models in Engineering, Fall 2018, Professors: Laurent El Ghaoui and Alexandre Bayen, UC Berkeley

Hidalgo-Gonzalez, P. “Frequency Regulation in Variable and Low Inertia Inertia Power Systems due to Renewable Energy”. Invited talk at professor Alexandra von Meier’s group meeting at UC Berkeley, November 2018

Hidalgo-Gonzalez, P.L., “Ingeniería construyendo un futuro energético limpio y sustentable”, Engineering Conference, October 2016, Centro Universitario de Oriente CUNORI, Guatemala.

Hidalgo-Gonzalez, P.L., Wei, M., Johnston, J.L., Raghavan, S., Coignard, J., Greenblatt, J., Saxena, S., Kammen, D.M., “Building a Healthier and More Robust Future: 2050 Low Carbon Energy Scenarios for California”, Progress presentation to Policy and Technical Advising Committees (CAISO, PG&E, CPUC) and CEC Chair Dr. Robert Weisenmiller, September 2016, California Energy Commission, Sacramento, CA, U.S.

Hidalgo-Gonzalez, P.L., Johnston, J.L., Kammen, D.M., “2030/2050 power system planning path dependency in western North America”, Masters presentation, May 2016, Energy and Resources Group, University of California, Berkeley, CA, U.S.

Hidalgo-Gonzalez, P.L., Johnston, J.L., Kammen, D.M., “2030/2050 power system planning path dependency in western North America”, Renewable and Appropriate Energy Laboratory seminar, May 2016, Energy and Resources Group, University of California, Berkeley, CA, U.S.

Kammen, D.M., Carvallo, J.P., **Hidalgo-Gonzalez, P.L.**, “A framework to manage national decarbonization regimes”, Our Common Future Under Climate Change Conference, July 2015, Paris, France.

Hidalgo-Gonzalez, P.L., Carvallo, J.P., Castro, F.I., Negrete-Pincetic, M., “Rethinking Electricity Systems in Chile: Renewable Energy, Efficiency, and Innovation”, Chile-California Conference (Calcubo), October 2013, Stanford, CA, U.S.

PROFESSIONAL ACTIVITIES Best Paper Sessions Judge

Session: “Power System Stability, Phasor Measurements, Protection, and Control”
IEEE Power & Energy Society General Meeting, 2019.

Reviewer for journals:

- IEEE Transactions on Power Systems

Reviewer for conferences:

- IEEE Conference on Decision and Control
- IEEE American Control Conference
- IEEE Power & Energy Society General Meeting

Ph.D. and M.S. Admissions committee member
Control, Intelligent Systems, and Robotics
Electrical Engineering and Computer Sciences
University of California, Berkeley, CA, U.S.

Admissions 2019

- MENTORSHIP** Julia Szinai (PhD student, ERG at UC Berkeley)
Bo Li (Chongqing University Visiting PhD student, ERG at UC Berkeley)
Ziming Ma (Tsinghua University Visiting PhD student, ERG at UC Berkeley)
Alexander Lathem (Yale University Visiting student, ERG at UC Berkeley)
Sahana Rangarajan (EECS at UC Berkeley)
Sean Anderson (Energy Engineering at UC Berkeley, advised his thesis)
Megan Swanson (EECS at University of Washington, through NSF SUPERB)
Florin-James Langer (EECS at UC Berkeley)
Eric (Yiqi) Hou (EECS at UC Berkeley)
Yawen (Sabrina) Sun (EECS at UC Berkeley)
Jason Wang (EECS at UC Berkeley)
Eva Osandón (Industrial Engineering at Universidad Adolfo Ibáñez, Santiago, Chile)
Daniel Kincade (Industrial Engineering at Universidad Adolfo Ibáñez, Santiago, Chile)
- SKILLS** *MySQL, PostgreSQL, AMPL, Matlab, R, Python, Maple, Microsoft Office, and L^AT_EX*
- VOLUNTEER WORK** *Girls in Engineering at UC Berkeley*
Taught Robotics workshops for Middle school girls
(Summer 2017, Summer 2019)
- Undergraduate mentoring program*
Berkeley Artificial Intelligence Research
Electrical Engineering and Computer Sciences
Fall 2018
- “Country’s Mission and Work”*
Community building in remote and low income towns in Chile
Designed and held workshops for children
Repaired and maintained public infrastructure
Jan 2007, July 2001, and Jan 2010
- Earthquake relief in Chile (Mar 2010)*
- LANGUAGES** *Fluent: English and Spanish. Basic: Italian.*
- HOBBIES** *Sports*
Volleyball, soccer, rock climbing, running, ping pong, and bike riding.
- Miscellaneous*
Meditation, traveling, drawing, and painting.