Carlos Abad

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Employment	**Civil and Environmental Engineering, Stanford University**, Postdoctoral Associate Stanford Sustainable Systems Lab.	2015-
Education	**Columbia University**, Ph.D. in Operations Research Industrial Engineering and Operations Research Department	2015
	Instituto Tecnologico Autonomo de México B.Sc. in Applied Mathematics	2009

Research Interests

robust optimization, compressive sensing, dynamic programming, Bayesian inference, mechanism design and their applications to the operation and economics of electric grids

Research Papers

Optimal Maintenance Policies for Automated Demand Respose Devices, with G. Iyengar. Accepted for publication, IEEE Transactions on Smart Grid, 2015.

Portfolio Selection with Multiple Spectral Risk Contraints, C. Abad and G. Iyengar, SIAM J. Finan. Math., 6(1), 467-486, 2015.

Power Control of Solar Micro-grids in Developing Countries, with G. Iyengar and V. Modi. Working paper, 2015.

Regularized Sample Average Approximation via Adjustable Robust Optimization, with V. Goyal and B. Lu. Work in progress.

Load-shed Detection in Demand Response Programs, with G. Iyengar. Working paper, 2014.

Honors & Awards

Research Assistantship, The Earth Institute, Columbia University, 2013 - 2015.

Deming Doctoral Research Fellowship, The W. Edwards Deming Center, Columbia Business School, 2013 - 2014.

Research Assistantship, Integration of Renewables via Demand Management (joint DOE ARPA-E project between Autogrid Systems Inc., Lawrence Berkeley National Laboratory, and Columbia University), 2012 - 2013

Doctoral Fellowship, School of Engineering and Applied Science, Columbia University 2010 - 2015.

ITAM Alumni Research Award, Best Applied Mathematics B.Sc. Thesis, *The Clarke-Wright heuristic for the vehicular routing problem. An application to the Mexican Ministry of Health's Health Caravans Program*, 2009.

Research Assistantship, Consejo Nacional de Ciencia y Tecnología (CONACyT, Mexico's NSF), 2008 - 2009.

Invited Talks	2015 University of Southern California - Industrial and Systems Engineering; Universitat Pompeu Fabra - Economics and Business; University of Minnesota - Industrial and Systems Engineering.
	2014 Cornell University - Information, Systems and Networks Seminar, Electrical and Computer Engineering.

Conference Presentations

Power Control of Solar Micro-grids in Developing Countries
INFORMS, San Francisco, USA, Nov 2014
Invited talk at IFORS, Barcelona, Spain, Jul 2014

Optimal Maintenance Policies for Automated Demand Response Devices
MSOM, Seattle, USA, Jun 201

Load-shed Detection in Demand Response Programs
INFORMS, Minneapolis, USA, Oct 2013

Portfolio Selection with Multiple Spectral Risk Constraints.
Invited talk at INFORMS, Phoenix, USA, Oct 2012
ISMP, Berlin, Germany, Aug 2012

Teaching

Guest Lecturer, Columbia University   Fall 2014
Forecasting techniques lecture in the *Energy Infrastructure Planning* course (MME), Prof. V. Modi

Teaching Assistant, Columbia University   2010-2015
Supply Chain Management (MBA, EMBA), Prof. M. Singh, Spring 2014
Operations Strategy (MBA, MS&E), Prof. M. Singh, Summer 2013
Asset Allocation (MFE), Prof. G. Iyengar, Spring 2012
Corporate Finance (EMBA, MS&E), Prof. A. Marciano, Fall 2011
Production Inventory Planning and Control (BSOR), Prof. VA. Truong, Spring 2011
Corporate finance and industrial economics (MSOR), Prof. S. Kachani, Fall 2010

Professional Experience

Summer intern - AutoGrid Systems   Summer 2012
Machine learning methods for forecasting industrial, and residential loads

Risk analyst - Sociedad Hipotecaria Federal (SHF)   Jul 2009 - Aug 2010
Linear discriminant analysis for credit scoring
VaR tracking tool for SHF traders
Risk model for the minimum wage-UDIS swap

Analyst - BBVA Bancomer   Jun 2008 - Jul 2009
Employees' medical expenditure analysis

Volunteering

Teaching - La ciencia en tu escuela   Aug 2008 - Jun 2009
Joint project between CONACyT, the Mexican Ministry of Public Education, and the Mexican Academy of Sciences
Software courses for elementary and middle school teachers

Other Skills   Programming: Java, Python

Software: Gurobi, Mathematica, Matlab, R, SAS

Databases: MySQL

Languagues: English (fluent), Spanish (native)

References   Prof. Garud Iyengar, IEOR, Columbia University
garud@ieor.columbia.edu
(212) 854-4594

Prof. Vijay Modi, Mechanical Eng. and The Earth Institute, Columbia University
modi@columbia.edu
(212) 854-2956

Dr. Timothy Heidel, Program Director, ARPA-E
timothy.heidel@doe.gov

Dr. Amit Narayan, Founder & CEO, AutoGrid Systems Inc.
amit@auto-grid.com
(650) 646-7687

Prof. Vineet Goyal, IEOR, Columbia University
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