Adrian Albert

Contact Information

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Recent Professional Experience

Massachusetts Institute of Technology (MIT). Cambridge, MA

Postdoctoral Scholar, Department of Civil and Environmental Engineering **July 2016 - present**

Stanford Linear Accelerator Center (SLAC). Menlo Park, CA

Research Scientist, Applied Program **July 2016 - present**

Research on machine and deep learning methods for satellite imagery and sensor time-series data for energy, mobility, and infrastructure utilization in urban environments.

Myriad Sensors, Inc. San Jose, CA

Data analytics advisor, founding team member and investor **June 2014 - present**

Educational technology startup company making Pocket Lab, a portable, multifunctional, and low-cost environmental sensor and data analytics platform for science education.

C3 IoT, Inc. Redwood City, CA

Senior Data Scientist **August 2014 - July 2016**

Research and development of high-performance computational methods, systems, and experiments for smart grids, large-scale infrastructure systems, and industrial equipment: failure prediction for physical power network assets, optimal monitoring of power systems, demand-response, and segmentation and targeting for efficiency programs.

Education

Stanford University, CA

PhD in Electrical Engineering **September 2014**

- Thesis: *Problems, models, and algorithms in data-driven energy demand management*
- Commitee: Ram Rajagopal (advisor), James Sweeney (co-advisor), Benjamin van Roy (reader), Martin Fischer, Jure Leskovec.
- Graduate coursework: large-scale data mining, machine learning, network modeling and analysis, visualization, optimization, econometrics, statistical learning theory, reinforcement learning.

MS in Management Science and Engineering **December 2012**

- Economics and Finance track.

Jacobs University Bremen, Germany

MSc in Astrophysics (Diplom-equivalent) **June 2009**

- MSc thesis: "Spatial gradients estimation using three-spacecraft data" (with J. Vogt).

BSc in Physics; BSc in Computational Science **June 2007**

- BSc thesis: "Efficient calculation of cosmic particle fluxes in paleomagnetospheres" (with J. Vogt).

Distinctions and Awards

U.S. Green Card for "Alien of Extraordinary Ability" (EB-1 category), 2015.

Grand Prize (with Pocket Lab), Yale School of Management Education Leadership Conference business plan competition, 2014 ($ 10,000).

Third Place (with Pocket Lab), Stanford BASES Challenge, 2014 ($ 5,000).

Honourable Mention, "Best Romanian Student Abroad" program, 2012.

Link Energy Fellowship Honourable Mention, 2011.

W. Noel Eldred Graduate Fellowship, Stanford University, 2009-2010

European Space Agency (ESA) Scholarship for attending the NASA Academy, 2008

Konrad Adenauer Foundation (KAS) Fellowship, Germany, 2007-2009

Nobel Foundation Scholarship for attending the Nobel Prize Winners Lindau Meeting, 2005

Member of the Enlarged Romanian Physics Team, International Physics Olympiad, 2003

Silver and Bronze Medals, National Physics Olympiad, Romania, 2001, 2003

Selected Journal Publications

Albert, A., Massoumy, M. Predictive segmentation of energy consumers. Applied Energy, 2016.

Albert, A., Rajagopal, R. Finding the right users for thermal demand-response: an experimental evaluation. IEEE Transactions on the Smart Grid, 2016.

Albert, A., Rajagopal, R. Thermal profiling of residential energy use. IEEE Transactions on Power Systems, vol. 30, no. 2 (2014).

Albert, A., Rajagopal, R. Cost-of-service segmentation of energy consumers. Forthcoming, IEEE Transactions on Power Systems, vol. 29, no. 6 (2014).

Albert, A., Rajagopal, R. Smart meter driven segmentation: what your consumption says about you. IEEE Transactions on Power Systems, vol. 28, no. 4, 2013.

Armel, C., Gupta, A., Shrimali, G., Albert, A. Disaggregation: the Holy Grail of Energy Efficiency? Energy Policy, vol. 52(C), 2013.

Selected Conference Papers

Albert, A., W., Rajagopal, R. Strategic scheduling of energy consumers. IEEE Conference on Decisions and Control (CDC) 2015, Tokyo, Japan.

Albert, A., Gebru, T., Ku, J., Leskovec, J., Rajagopal, R. Drivers of variability in energy consumption. European Conference on Machine Learning and Principled Knowledge Discovery in Databases (2013).

Albert, A., Rajagopal, R. Building dynamic thermal profiles of energy consumption for individuals and neighborhoods. IEEE Conference on Big Data (2013).

Albert, A., Merugu, D., Gomes, N., Prabhakar, B. "Incentive mechanisms for Societal Networks: influencing behavior in healthcare and transportation Systems". *Stanford Computer Forum*, Stanford, CA, March 2011.

Albert, A., Rajagopal, R., Sevlian, R. "Power Demand Distributions: Segmenting Consumers using Smart Meter Data". *ACM BuildSys*, Seattle, WA, 2011.

Invited Talks

2014: INSEAD, Xerox PARC, UC Berkeley
2013: MIT Sloan School of Management, UPenn Wharton School, IBM Research Ireland

Selected Conference Talks

ARPAE Innovation Summit: 2013, 2014, 2015
INFORMS: 2012 (data mining cluster), 2013 (analytics and data mining clusters), 2014, 2015(energy and data mining clusters)
BECC 2013, ECML-PKDD 2013, ACM BuildSys/SenSys 2011

Grants

DoE ARPA-E Student Award, 2013, 2014.

The ABB Group Grant, $72,000, 2013 (with Ram Rajagopal).

Wharton Customer Analytics Initiative (WCAI) PG&E data grant, 2012 (with Stanford ARPA-E).

Teaching

Currently co-supervising 3 PhD students on machine learning-related research in Operations Research, Civil and Environmental Engineering, and Computer Science Supervised student class projects, Modern Power Systems course, Stanford University, 2014
Supervised Electrical Engineering and Computer Science Master's students for independent research study, Stanford University, 2013-2014
Teaching Assistant, Mathematics, Earth and Space Sciences, Jacobs University Bremen, 2005-2008

Professional service

Reviewer for journals: Energy Efficiency, IEEE Transactions on Power Systems, IEEE Transactions on the Smart Grid, Applied Energy, Energy Journal
Conference technical reviewer committee: IEEE CDC (2016, 2015, 2014, 2013), AAAI 2014, IEEE SmartGridComm 2013
President (2011-12) and Treasurer (2010-11), Romanian Students Association at Stanford
Selection panel NASA Academy (2009) and NASA Soffen Memorial Travel Grant (2009)

Previous Professional Experience

IBM Almaden Research Center, San Jose, CA

Research Intern, Services Sciences Division **June 2010 - September 2010**

Designed a concept of a system for acquiring location data from GPS phones and predicting high-level user mobility behaviour (significant locations, typical trips). Implemented a prototype PCA-based linear mobility model and Android app.

Pixar Animation Studios, Emeryville, CA

Research Assistant, Research Department **March 2009 - September 2009**

Analyzed authoring effort spent for lighting effects in Pixar feature animation films Up, Ratatouille, and Wall-E. The insights were used for supporting the research decisions in front of Pixar management.

NASA Marshall Space Flight Center, Huntsville, AL

NASA Academy Research Associate **May 2008 - August 2008**

Research on electric field sensor networks for characterizing the location and time of occurrence of lighting events. Participated in seminars with senior NASA and space industry leadership.

algorithmica technologies gmbh, Bremen, Germany

Mathematics Consultant **October 2007 - May 2008**

Implemented an observable operator model into an industrial C++ application for predicting failure of critical parts of a chemical plant based on measurement history of physical properties.

University of California, Santa Barbara, CA

REU Intern, Mathematics Department **August 2007 - September 2007**

Research on a novel desingularization method based on an exponentially decaying smoothing parameter for the vortex sheet model of the Kelvin-Helmholtz instability. Proved numerically the superior convergence rate of this desingularization.

NASA/AURA Space Telescope Science Institute, Baltimore, MD

REU Intern **June 2007 - August 2007**

Worked on astrophysical images processing and World Coordinate Systems calculations for the Google Sky and Microsoft World Wide Telescope projects.

University of California, Los Angeles, CA

RIPS Intern at the NSF Institute of Pure and Applied Mathematics **June 2006 - August 2006**

Research on a novel algorithm for efficiently simulating many colliding deformable objects to create physically plausible set-dressing elements for Pixars Rattatooie animation film.

Languages

Romanian (native), English, German (fluent), French (working knowledge)

Python, R, C/C++, Javascript, Matlab, Hadoop/MapReduce, LaTeX 2_ε, HTML/CSS, D3.