

Anqi Fu

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EDUCATION

- Ph.D in Electrical Engineering, Stanford University** *In progress*
Emphasis: Convex Optimization, Radiation Treatment Planning
Adviser: Stephen Boyd
- M.S. in Statistics, Stanford University** *Dec 2014*
- M.A. in Business Research, Stanford Graduate School of Business** *Dec 2012*
Program: Economic Analysis and Policy
- B.S. in Electrical Engineering, University of Maryland, College Park** *May 2009*
Emphasis: Digital Signal Processing, Communication Theory, *GPA:* 4.0/4.0
Thesis: Nanoporous Silicon Waveguides for Biosensing, advised by Thomas E. Murphy
- B.A. in Economics (Minor in Mathematics), University of Maryland, College Park** *May 2009*
Emphasis: Game Theory, Auctions, Mechanism Design, *GPA:* 4.0/4.0
Thesis: Design and Analysis of the AWS Spectrum Auctions, advised by Peter Cramton

PAPERS

A. Fu, B. Narasimhan, S. Boyd. “CVXR: An R Package for Disciplined Convex Optimization.” *arXiv preprint: arXiv: 1711.07582*. Submitted, November 2017.

A. Fu, B. Ungun, L. Xing, S. Boyd. “A Convex Optimization Approach for Radiation Treatment Planning with Dose Constraints.” *Submitted*, June 2017.

O.J. Glembocki, R.W. Rendell, D.A. Alexson, S.M. Prokes, A. Fu, M.A. Mastro. (2009). “Dielectric-Substrate-Induced Surface-Enhanced Raman Scattering.” *Phys. Rev. B*, vol. 80 (8), 085416.

R.D. Shull, V. Provenzano, A.J. Shapiro, A. Fu, M.W. Lufaso, J. Karapetrova, G. Kletetschka, V. Mikula. (2006). “The Effect of Small Metal Additions (Co, Cu, Ga, Mn, Al, Bi, Sn) on the Magnetocaloric Properties of the Gd₅Ge₂Si₂ Alloy.” *Journal of Applied Physics*, vol. 99 (8), 08K908.

J.L. Her, K. Koyama, K. Watanabe, V. Provenzano, A. Fu, A.J. Shapiro, R.D. Shull. (2005). “High-Magnetic Field X-ray Diffraction Studies on Gd₅(Ge_{2-x}Fe_x)Si₂ (x = 0.05 and 0.2).” *Materials Transactions*, vol. 46 (9), pp. 2011-2014.

PRESENTATIONS

- useR! Conference**, Stanford University, Stanford, CA *2016*
H2O World, Mountain View, CA *2015*

SOFTWARE

CVXR, an R package for modeling convex optimization problems. www.github.com/anqif/CVXR

ConRad, a Python library for radiation treatment planning. www.github.com/bungun/conrad

H2O, a Java-based distributed statistical analysis software. I was the primary developer on generalized low rank models (GLRM) and the R package. www.github.com/h2oai/h2o-3

RESEARCH EXPERIENCE

School of Medicine, Stanford University, Stanford, CA

Life Science Research Professional, Xing Lab

Jan 2016 – Sep 2016

- Developed a unified convex optimization approach for radiation oncology treatment planning with dose-volume constraints. Implemented and tested algorithm in Python on clinical data.
- Initiated and led the development effort on CVXR, an R package that provides an object-oriented modeling language for convex optimization problems.

Economics & Social Systems Group, Yahoo! Research, Berkeley, CA

Research Intern

July 2011 – Sep 2011

- Constructed a theoretical model of market competition when firms have access to targeted advertising technology, and analyzed its pure Nash equilibria.

RioRey Network Security (via MIPS), University of Maryland, College Park, MD

Research Assistant

Feb 2008 – Sep 2008

- Designed, developed and implemented an adaptive algorithm to detect and filter incoming packets from DDoS flood attacks. Simulations with customer data show an accuracy rate of > 80%.

Photonics Research Laboratory, University of Maryland, College Park, MD

MERIT Biosystems Internships for Engineers (BIEN) Student Researcher

June 2008 – Aug 2008

- Designed, built and programmed a scanning laser system. Fabricated single mode porous silicon waveguides for optical sensing of biomolecules and characterized their transmission spectra.
- Composed and presented a technical report, which was awarded best out of entire program pool.

Magnetic Materials Group, National Institute of Standards and Technology, MD

Student Researcher

June 2004 – Oct 2004

- Characterized the magnetocaloric properties of various metal-doped $Gd_5Ge_2Si_2$ using X-ray diffraction, SEM microscopy and SQUID magnetometry.

INDUSTRY EXPERIENCE

H2O: Math Engine for Big Data, H2O.ai, Mountain View, CA

Machine Learning Scientist

Sep 2013 – Aug 2014, Jan 2015 – Jan 2016

Math Hacker (Data Scientist) Intern

June 2013 – Aug 2013

- Led the design, implementation and testing of GLRM (generalized low rank models) on H2O, a Java-based distributed statistical software engine.
- Initiated and led the development effort on an R package that allows users to run H2O from within R via the REST API. Package was accepted by CRAN in June 2014.

Power Electronics Branch, Naval Research Laboratory, MD

Engineering Technician

June 2006 – Mar 2008

- Collected and analyzed Raman spectra from dielectric core nanowires. Determined optimal Ag deposition time on retroreflector beads coated with SERS-active nanoparticles for greatest signal intensity.

TEACHING EXPERIENCE

Graduate School of Business, Stanford University, Stanford, CA

Teaching Assistant for OIT268 (Making Data Relevant)

Jan 2012 – Apr 2012

ECE Department, University of Maryland, College Park, MD

Undergraduate Teaching Fellow for ENEE114 (Programming Concepts for Engineers)

Aug 2007 – Aug 2008

HONORS AND AWARDS

Stanford Graduate Fellowship , Stanford University	2016
Graduate Research Fellowship , National Science Foundation	2009
Electrical and Computer Engineering Chair's Award , University of Maryland, College Park	2009
Behavioral and Social Sciences Dean's Scholar , University of Maryland, College Park	2009
Senior Dillard Award for Best Economics Thesis , University of Maryland, College Park	2009
Intel Science Talent Search Semifinalist	2005
Maryland Distinguished Scholarship	2005
National Merit Scholarship Finalist	2005
Siemens Westinghouse Science Competition Semifinalist	2004