

Ravi Shroff

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Employment

New York University - Center for Urban Science and Progress

Senior Research Scientist, September 2016 -

Research Scientist, September 2014 - August 2016

The Australian National University - Mathematical Sciences Institute

Postdoctoral Fellow, September 2011 - April 2013

Other Positions

Data & Society Research Institute

Fellow, September 2016 - August 2017

New York City Administration for Children's Services

Consultant/PI, February 2016 - June 2017

ACLU of Illinois

Consulting Expert, September 2016 - June 2017

Stanford University

Visiting Scholar, January 2016 - March 2016

Microsoft Research - Computational Social Science Group

Intern, January 2014 - June 2014

Education

M.S. Applied Urban Science and Informatics, New York University, July 2014.

Ph.D. Mathematics, University of California, San Diego, June 2011.

Dissertation: Rigidity Properties of CR Embeddings into Hyperquadrics.

M.S. Mathematics, University of California, San Diego, June 2009.

B.S. Mathematics (with distinction), Economics, University of Washington, June 2005.

Publications

- J. Jung, C. Concannon, R. Shroff, S. Goel, D. Goldstein, “Simple Rules for Complex Decisions.” (2017). Under Review.
- R. Shroff, “Predictive Analytics for City Agencies: Lessons from Children’s Services.” (2017). To appear in *Big Data*.
- S. Goel, M. Perelman, R. Shroff, D. Sklansky, “Combatting Police Discrimination in the Age of Big Data.” (2017). In *New Criminal Law Review*, Vol 20 (No. 2), 181-232.
- S. Goel, J. Rao, R. Shroff, “Personalized Risk Assessments in the Criminal Justice System.” (2016). In *The American Economic Review (Papers and Proceedings)*, Vol 106 (No. 5), 119-123.
- S. Goel, J. Rao, R. Shroff, “Precinct or Prejudice? Understanding Racial Disparities in New York City’s Stop-and-Frisk Policy.” (2016). In *Annals of Applied Statistics*, Vol 10 (No. 1), 365-394.
- R. Wang, **R. Shroff**, Y. Zha, S. Seshan, M. Veloso, “Indoor Trajectory Identification: Snapping With Uncertainty.” (2015). *Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2015)*.
- P. Ebenfelt, R. Shroff, “Partial rigidity for CR embeddings of real hypersurfaces into hyperquadrics with small signature difference.” (2015). In *Comm. Anal. Geom*, Vol 23 (No. 1), 159-190.
- S. Duong, J. Lebl, A. Minor, R. Shroff, Y. Zhang, “CR singular images of generic submanifolds under holomorphic maps.” (2014). In *Arkiv för Matematik*, **52**, no.2, 301-327.

Grants

- Knight Foundation - News Challenge on Data. “Law, Order, and Algorithms: Making Sense of 100 Million Highway Patrol Stops.” (Team member). \$310,000.

Honors, Awards, & Fellowships

- Fellow, Data & Society Research Institute, 2016-2017
- Center for Urban Science and Progress (CUSP) Inaugural Fellowship, NYU, 2013-2014.
- Summer Graduate Teaching Fellow, University of California, San Diego, 2010.
- Outstanding Teaching Assistant Award, University of California, San Diego, 2010.

Selected Invited Talks

- “Data Tales from Industry” panel, June 2017, ISBIS 2017
- Lunch Seminar, Mar. 2017, Crime Lab New York

Risk Assessment Tools, Jan. 2017, New York City Bar Association - Civil Rights Committee

Spotlight session, Nov. 2016, Fairness, Accountability, and Transparency in ML, New York University.

CLIP colloquium, Oct. 2016, University of Maryland.

Algorithmic bias panel, Oct. 2016, Justice Codes Symposium, John Jay College.

Lunch Seminar, Oct. 2016, Center for Data Science, NYU.

Big Data, Machine Learning, and Criminology panel, Nov. 2015, Annual meeting of the American Society of Criminology, Washington D.C.

“Firestarter” talk, Nov. 2015, Data & Civil Rights Workshop, Washington D.C.

Tea Talk, Oct. 2014, Microsoft Research, New York City.

Differential Geometry Seminar, March 2012, Australian National University.

Analysis Seminar, May 2011, UC Irvine.

Complex Analysis and Geometry Seminar, Dec. 2010, Rutgers University.

Emerging Applications of Complexity for CR Mappings, Fall 2010, American Institute of Mathematics.

Other Professional Service

Invited member, Data Analytics Working Group, Center for the Advancement of Public Integrity (2016).

Invited participant, Innovations for Urban Security and Policing, LSE Cities (Nov. 2015).

Reviewer, Journal of Policy Analysis and Management

Teaching Experience

New York University, New York City

Instructor, Spring Semester 2016

Co-designed and taught the course “Machine Learning for Cities” at NYU CUSP. Gave weekly lectures on a variety of topics including mixture models, ensemble methods, interpretable models, and causality. Received excellent course evaluations.

Instructor, Summer Semester 2015

Taught the “Science of Cities” research seminar course at NYU CUSP. Gave weekly lectures on a variety of topics including model fitting and calibration, natural experiments and causality, and dimensionality reduction.

Instructor, Spring Semester 2015

Co-taught the course “Urban Science Intensive I” at NYU CUSP. Organized 15 student capstone projects for approximately 50 Master’s students, as well as weekly guest lectures.

Capstone Project Supervisor, 2015-2017

Supervised a team of four students working with the New York County District Attorney’s Office to predict which recipients of a Desk Appearance Ticket will fail to appear for their scheduled arraignment. (2017).

Supervised a team of five students working with the New York State Office of the Attorney General to create a tool for detecting consumer fraud. Students awarded Best Project Prize. (2016).

Supervised a team of four students working with the New York State Office of the Attorney General to create and test a new version of the website NY Open Government. (2015).

Supervised a team of four students working with the Mayor’s Office of Operations to understand and visualize data from the ACCESS-NYC web portal, where citizens can screen for eligibility for federal, state, and city benefits. (2015).

Stanford University, Stanford

Visiting Scholar, Winter Quarter 2016

Co-designed the course MSE330, “Law, Order, and Algorithms” for the School of Engineering. Gave guest lectures on a variety of topics including gun control and prison policy, sensors and surveillance, and algorithmic bias.

The Australian National University, Canberra

Lecturer, First Semester 2012

Taught a fast-paced first year calculus class with enrollment of 250 students. Taught using iPad with recorded lectures. Course evaluations above department average.

University of California, San Diego

Associate Instructor with Teaching Fellowship, Summer 2010

Taught a multivariable calculus course with enrollment of 84 students. Gave lectures, designed and administered exams, and assigned grades. Recommended as instructor by 96 % of students surveyed, well above department average.

Teaching Assistant, Fall 2006 to Fall 2010.

Assisted with courses in calculus, linear algebra, complex analysis, real analysis, and proof-writing. Served as teaching assistant for a year long honors calculus and linear algebra course.

Skills and Languages

Computational Skills: R, Python, SQL, Hadoop.

Languages: English (fluent). Portuguese (intermediate).

References

Available on request.