Kevin Shi

Education

2014–current **Ph. D. in Computer Science**, *Columbia University*.
Theory group, coadvised by Daniel Hsu and Allison Bishop
Research interests: algorithms, statistical learning theory, nonconvex optimization, obfuscation

May 2017 **M. Phil in Computer Science**, *Columbia University*.
Subject: stochastic optimization

2012–2014 **M. A. in Mathematics**, *University of Pennsylvania*.

2010–2014 **B. S. in Computer Science and Mathematics**, *University of Pennsylvania*.
Magna Cum Laude. Honors in Mathematics

Publications

A. Bishop, L. Kowalczyk, T. Malkin, V. Pastro, M. Raykova, and K. Shi. A simple obfuscation scheme for pattern-matching with wildcards. Submitted to Crypto 2018.

Daniel Hsu, Kevin Shi, and Xiaorui Sun. Linear regression without correspondence. In *Advances in Neural Information Processing Systems 30*, 2017.

Alexandr Andoni, Daniel Hsu, Kevin Shi, and Xiaorui Sun. Correspondence retrieval. In *Proceedings of the 2017 Conference on Learning Theory*, 2017.

Jimmy Wang, Kevin Shi, Alan Stocker, and Daniel Lee. Optimal neural tuning for arbitrary stimulus priors. In *Computational and Systems Neuroscience*, 2012.

Experience

Research

09/2014–current **Graduate Research Assistant**, *Cryptography Lab at Columbia University*.
Provable obfuscation schemes from simple assumptions. Understanding the limits of what function classes can be black box obfuscated

09/2014–current **Graduate Research Assistant**, *Algorithmic Statistics Group at Columbia University*.
Provable algorithms for nonconvex optimization problems in machine learning. Characterizing the behavior of first-order algorithms on nonconvex landscapes

01/2017–04/2017 **Visiting Graduate Student**, *Simons Institute for the Theory of Computing*.
Program on Foundations of Machine Learning

05/2012–08/2012 **Summer Intern**, *Penn Applied Algebraic Topology*, University of Pennsylvania.
Studied a sheaf-theoretic generalization of network flow duality

05/2011–08/2011 **REU in Computational Neuroscience**, *Lee Lab*, University of Pennsylvania.
Studied population codes of spike trains using information-theoretic techniques

Industry

05/2018–08/2018 **Software Engineering Intern**, *Google*, Mountain View.
Research in model selection problems

05/2017– **Data Science Intern**, *Button*, New York City.
08/2017 Researched and implemented models for adaptive anomaly detection in Python. Enabled automatic learning and tracking of new partner launches. Deployed models to process all production data in real time

05/2014– **Computer Vision Intern**, *Lily Robotics*.
08/2014 Researched and implemented a vision-based people tracking system in C++ and OpenCV for use on a quadrotor platform. Used techniques from multiscale object detection, online machine learning, and sensor fusion

05/2013– **Research Intern**, *MIT Lincoln Laboratory*.
08/2013 Designed feature extraction algorithms for time series obtained from radar. Wrote internal paper

Teaching

Columbia University

Fall 2016 **Programming and Problem Solving**, *Teaching Assistant*.

Spring 2016 **Advanced Machine Learning**, *Teaching Assistant*.

Fall 2015 **Algorithms for Massive Data**, *Teaching Assistant*.

University of Pennsylvania

Spring 2013 **Algorithms**, *Teaching Assistant*.

Fall 2012 **Theory of Computation**, *Teaching Assistant*.

Service

2017–2018 **Organizer**, *Data Science Institute Student Seminmar*, Columbia University.

2016 **Organizer**, *Computer Science Department Coffee Hour*, Columbia University.

2012 –2014 **Chair**, *Penn Undergraduate Math Society*, University of Pennsylvania.

Reviewer, *STOC 2016, JMLR 2016*.

Awards

03/2018 **Oscar and Verna Byron Fellowship**, *The Fu Foundation School of Engineering and Applied Science*, Columbia University.

09/2014 **PennApps Hackathon**, *Top 20*, University of Pennsylvania.
SmartBoard functionality using multiple webcams to track finger location and a projector to draw

09/2013 **PennApps Hackathon**, *Top 20*, University of Pennsylvania.
Automatic page-turner which listens to the musician and matches location in sheet music

12/2012 **Putnam Math Competition**, *Top 500*.

10/2012 **SAP Code Slam Grand Finals**, *1st Place*.

Technical Skills

Proficient in Python, Matlab, Java, Tensorflow

Familiar with C++, OpenCV, SQL