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Addison Hu

Education

August 2013 – May 2017 **Yale University**, *New Haven, CT*.
- Bachelor of Science, Statistics (GPA: 3.9)
- Research topics: computationally efficient methods for optimizing over large-scale data sets; minimax estimation of precision matrices; latent variable graphical models; screening rules.

Research & Teaching Experience

August 2016– May 2017 **Research Assistant**, *Yale Dept of Statistics*, New Haven, CT.
- Implemented approximations to second-order optimization algorithms in distributed settings
- Studied risk bounds for estimation of bandable precision matrices.

January 2016 – May 2017 **Teaching Fellow**, *Yale Depts of Computer Science; Statistics*, New Haven, CT.
- Served in grading and supplemental teaching roles, covering material including inference, model selection, optimization, dimensionality reduction, dictionary learning, matrix factorization, etc., with applications in R, Python, and Spark.

August 2015 – May 2016 **Research Assistant**, *Yale Institute for Network Science*, New Haven, CT.
- Wrote graph filtering and local clustering algorithms based on novel research (C++)
- Data cleanup and analysis in R and Python

Publications

December 2017 **A. J. Hu and S. N. Negahban**, *Minimax Estimation of Bandable Precision Matrices*, Advances in Neural Information Processing Systems.
- **Condensed abstract:** Bandable precision matrices arise naturally in a number of time-series contexts and correspond to the adjacency matrix representation of the Gauss-Markov graph. Minimax results under the spectral norm have previously been established for covariance matrices, both sparse and banded, and for sparse precision matrices. We establish minimax bounds for estimating banded precision matrices under the spectral norm.
- Journal version at `https://arxiv.org/abs/1710.07006`

Projects

December 2016 **Latent Variable Inference with Factor Graphs**.
- In this project, we consider a parameter estimation problem where the factor model is bipartite, conditioned on a small set of global factors influencing one of the parts. We pose the search for optimal parameters as an optimization problem and provide update rules for gradient descent.
- Term project for STAT667, a graduate-level course on probabilistic graphical models.
- Link: `http://huisaddison.com/pdfs/LatentVariableInferenceWithFactorGraphs.pdf`

Projects, cont.

January 2017 **newton-sketch**.
- Implementation of *Newton Sketch: A Linear-time Optimization Algorithm with Linear-Quadratic Convergence* in Spark and NumPy.
- In the Spark implementation, we adapt the algorithm to the distributed setting.
- Independent work. Link: `https://github.com/huisaddison/newton-sketch`

Professional Experience

July 2017 – present **Data Scientist**, *Facebook*, Seattle, WA.
- I work on Content Search Personalization.

Summer 2016 **Data Scientist**, *OnCorps*, Cambridge, MA.
- Authored internal R library to rapidly and faithfully visualize classification trees via D3.js, with integration into core products and services

Volunteer Experience

August 2013 – May 2014 **Math Coach**, *MathCounts Outreach*, New Haven, CT.
– Afterschool mathematics coaching to students in the New Haven public school system.

September 2017 – present **Tutor**, *Youth Tutoring Program*, Seattle, WA.
– Tutoring & mentoring for Seattle-area students from low- and mixed-income housing.

Technical Skills

Proficient R, Python, LaTeX, SQL

Basic C, Git, Spark (Scala)

Personal Interests

Skateboarding, swimming, cooking