

XINRU (ALICE) LIU

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📍 Boston, MA

ABOUT ME

A PhD candidate in statistics with strong statistical and programming background, offering 2+ years of exceptional research and hands-on experience in **statistical modeling**. Seeking for an internship position in **data science**.

RESEARCH EXPERIENCE

Reinforcement Learning on Recommender System

📅 Jan 2021-present

- Develop a soft version of Deep Q-Network which enables the agent to learn on a continuous and large action space.
- Trained a RL agent that effectively learns from Youtube user feedback and maximizes the long-term reward (user's satisfaction) using REINFORCE algorithm, a policy-gradient-based approach.
- Built a Hierarchical Bayesian Probabilistic Factorization Model on Netflix data set to provide movie recommendation to the users based on their previous ratings.

Piano Music Classifier

📅 Sept 2018 - May 2019

- Built a digitized piano music classifier using Hidden Markov Models (Python, Pandas, Scikit-learn).
- Computed the similarity between pieces from different composers.

Quality Prediction for 3D Printed Objects

📅 May 2018 - Nov 2018

- Employed dimension reduction techniques (uncorrelated multilinear PCA) for extracting spatial patterns from high-dimensional measurement images of 3D-printed objects.
- Trained a two-level random forest classifier to guarantee time efficiency while maintaining high accuracy.

Software Development on Stylistic Analysis

📅 June 2017 - Sept 2017

- Develop a text analysis tool to investigate authorship attribution and textual lineage (Pycharm, Github).
- Performed hierarchical clustering analysis on tokenized text (Word2Vec, NLTK).
- Employed exploratory analyses to check for errors and detect high-level patterns.

EDUCATION

Boston University

Ph.D. Candidate in Statistics

📅 Sept 2019 - Present

📍 Boston, MA

- **Related coursework:** Generalized Linear Model w/ Application in R, Computational Statistics, Hypothesis Test, Time Series & Forecasting, Prob Theory.
- **Qualifying Exam:** Applied Statistics, Mathematical Statistics

Wheaton College

B.A. in Mathematics & Computer Science, Summa Cum Laude, GPA: 3.93

📅 Sept 2015 - May 2019

📍 Norton, MA

- **Related coursework:** Data Structure, Algorithm, Theory of Computing, Graphics, Data Visualization.
- Minor: Piano Performance

TECHNICAL SKILLS

Data Analysis

Competitive Coding

Statistical Modeling

Machine Learning

PROGRAMMING SKILLS

R
Python
Matlab
C & C++
SQL
Javascript
HTML & CSS



HONORS & AWARDS

- Departmental Honors in Mathematics
- Wallace Mathematics Prize (2019)
- Fred Kollett Prize in Mathematics and Computer Science (2019)
- Helen Zoe Duncan Prize in Piano Performance (2017-2019)

PUBLICATION

- Gui X., Liu X., Qi T., Guo W. (2018). Multimodal Data Fusion in 3D printing Quality. *IEEE Sensors Letters*, DOI 10.1109/LENS.2018.2881475.

TEACHING EXPERIENCE

Teaching Fellow

Department of Mathematics & Statistics, Boston University

📅 May 2020 - Present

Calculus and Statistics Tutor

Department of Mathematics, Wheaton College

📅 Sept 2016 - May 2019

A DAY OF MY LIFE

