Long **Le**

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Education

University of Massachusetts Amherst *Amherst, MA*

B.S. in Computer Science and Statistics. GPA: 3.961 *Sep. 2018 - May 2022*

- **Graduate coursework**:
  - **Statistics**: Stochastic Calculus, Stochastic Process, Bayesian Statistics, Measure-theoretic Probability Theory.
  - **Math**: Convex Optimization, Numerical Methods, Real Analysis, Applied Modeling.
  - **CS**: Reinforcement Learning, Game Theory, Randomized Algorithms, Machine Learning, Neural Dynamics.
- **Academic Honors**: Chancellor's Scholarship, Sheila Flynn Research Scholarship, Dean's List.
- **Activities**: Chess club, Integrated Math Majors club (cofounder), Undergraduate Researchers interested in Data.

Publications

Parameter Inference in a Stochastic Neuronal Model using Deep Learning

Long Le, Yao Li

In Review - SIAM Undergraduate Online (2020). 2020

Industry Experience

Facebook *Menlo Park, CA*

Software Engineer Intern @ Instagram Ads *Jun. 2020 - Sep. 2020*

- Worked on *contextual ads*. Analyzed 7 signals to control ad load (amount of ads the user sees).
- Built streaming and static data pipeline, 3 ad load models and ran A/B experiments. *Metrics*:
  - Our models were 8-10x better than the baseline in revenue-user-sentiment tradeoff.
  - Ours were 4-8x better in efficiency (raise highest revenue with lowest ad load). +8-12% revenue.
  - Ours were neutral in viewability, ad load distribution, organic fraction and topline metrics.

Academic Experience

University of Massachusetts Amherst *Amherst, MA*

Research Assistant *Sep 2020 - Present*

- Working with Prof. Yair Zick on Game Theory and Multi-agent systems (specifically Bayesian Threshold Task Game)

University of Massachusetts Amherst *Amherst, MA*

REU Summer Researcher *May 2019 - Sep. 2019*

- Worked with Prof. Yao Li in the *Math REU* Program.
- Applied deep learning techniques to infer parameters of a stochastic neuronal model in biology.
- Talked at *New England REU Conference* and work submitted to SIAM Undergraduate Online.

University of Massachusetts Amherst *Amherst, MA*

Undergraduate Teaching Assistant *Jan. 2019 - Present*

- TA for Computer Vision (CS370), Numerical Methods (Math 551), Artificial Intelligence (CS 383), Calculus (Math 147), Intro Probability (CS 240).
- Hold office hour, grade homeworks and exams.

University of Massachusetts Amherst *Amherst, MA*

Research Assistant *Sep 2018 - Feb 2019*

- Worked with John Lalor (currently faculty at Notre Dame) on modeling ML learners using Item Response Theory.

Projects

Algorithmic Auctions

- Implemented VCG auction and revenue-maximzing auction for single parameter environment.

Infectious Disease Network

- Implemented SIR model and Gillespie sampling for epidemic in a small location population. Implemented degree-based mean-field network to model epidemic propagation in large connected population. Original paper here.

Lung Cancer Model

- Reproduced a Bayesian Mixture Model for Lung Cancer Prediction. These parameters can then be used as predictors in Cox regression for cancer progression. Original paper here.

Movie Recommender

- Implemented Alternating Least Square (ALS) for collaborative filtering on the MovieLens dataset. Implemented Locality Hashing to efficiently compute an user's inclination towards a massive pool of products.

Image Denoising

- Implemented Ising model and Monte Carlo Markov Chain (MCMC) for image denoising.

NBA Salary Prediction

- Built random forest and multivariate linear models for NBA players' salary prediction using their performance metrics.

Skills & Interests

Programming Python, C++/C, SQL, Java, MATLAB, R.

Writing Course notes and high school blog.