# Long Le

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## Education

**University of Massachusetts Amherst** **Amherst, MA**
*Dual Bachelor of Science, Computer Science and Statistic. GPA: 3.958 / 4.0* *Sep. 2018 – Dec. 2021*

- **Graduate Coursework**: 14 graduate-level classes. Selected courses:
  - **Computer Science**: Randomized Algorithms, Neural Dynamics, Stochastic Simulation.
  - **Math**: Convex Optimization, Numerical Methods.
  - **Statistics**: Stochastic Calculus, Stochastic Process, Measure-theoretic Probability.
- **Academic Honors**:
  - Chancellor's Scholarship: highest merit-based award for out-of-state students at UMass.
  - Sheila Flynn Research Scholarship: Summer 2019 research funding from UMass Mathematics Department.

## Technical Skills

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| **Research Areas** | AI, Machine Learning, Reinforcement Learning. |
| **Programming Languages** | Python, C++/C, SQL, Java, MATLAB, R. |

## Publications

**Long Le** and Yao Li. Supervised neuronal parameter estimation from spiking trains. *In submission to Journal of Mathematical Biology*.

Huao Li, **Long Le**, Max Chis, Keyang Zheng, Dana Hughes, Michael Lewis, and Katia Sycara. Sequential theory of mind modeling in team search and rescue tasks. *In submission to AAAI FSS ToM for Teams 2021*.

**Long Le**, Dana Hughes, and Katia Sycara. Hierarchical multi-agent reinforcement learning in urban search and rescue. *Working paper*.

**Long Le**, Vignesh Viswanathan, and Yair Zick. Ability coalitional games. *Working paper*.

**Long Le**. Classical and modern approaches in speech recognition. *[link]*.

## Industry Experience

**Facebook - Ads** **Menlo Park, CA**
*Software Engineer Intern* *Jun. 2020 – Sep. 2020*

- Worked with the Ads Supply Optimization Team of Instagram to develop new Machine Learning (ML) models for contextual ad load, prescribing the amount of ads shown to users based on contextual signals.
- With novel ad hypotheses, our models significantly outperformed the existing ones in terms of revenue-user-sentiment trade-off (5-8x improvement) and other metrics.

## Research Experience

**Carnegie Mellon University - Robotics Institute** **Pittsburgh, PA**
*Research Intern* *March 2021 – Present*

- Working with Prof. **Katia Sycara** and Dr. **Dana Hughes** on Artificial Social Intelligence.
- Developing AI teams for search-and-rescue missions using Multi-agent Hierarchical Reinforcement Learning. [presentation video], [paper].
- Helped developing a Human Observer Experiment where observers infer mental states of rescuers.
- Developed a simple team coordination LSTM predictor based on team communication signals.
- Part of the Robotics Institute Summer Scholar Program (RISS).

**University of Massachusetts Amherst** **Amherst, MA**
*Research Assistant* *Sep. 2018 - Present*

- **Game Theory**: with Prof. **Yair Zick** on the strategic behavior and evolution of cooperative negotiation games under uncertainty (Fall 2020 - present).
- **Computational Neuroscience**: with Prof. **Yao Li** on applying deep learning to study biological neuronal models (Spring 2019 - Fall 2020). Funded REU research during Summer 2019.
- **ML Psychometrics**: with Prof. **John Lalor** (then PhD student) on modeling ML learners using Item Response Theory (Fall 2018).

## Teaching Experience

**University of Massachusetts Amherst** **Amherst, MA**

*Teaching Assistant* *Jan. 2019 - Present*

- **Computer Science**:
  - CS 490A: Natural Language Processing (Fall 2021)
  - CS 370: Computer Vision (Spring 2021).
  - CS 383: Artificial Intelligence (Spring 2020).
  - CS 240: Introductory Probability (Spring 2019, Fall 2019, Fall 2020).
- **Math**:
  - Math 551: Numerical Methods (Spring 2020, Spring 2021).
  - Math 128: Calculus (Spring 2019, Fall 2019).
- Outstanding TA Award for CS370 and CS240. Chosen by instructors for timely, detailed grading, (hyper)-active in discussion board and others.

## Class Projects

**Genderness in Anonymized Resumes** **Collaborators: Hannah Lerner, Aparimit Chandra**

*Natural Language Processing* *CS 689 (Spring 2021)*

- Explored gender bias of human annotators and gender recognizability of NLP models in anonymized resumes. [report].

**Infectious Disease Networks** **Collaborator: None**

*Graph, Networks* *CS 591NR (Spring 2020)*

- 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], [Jupyter Notebook].

**Lung Cancer Model** **Collaborators: Vishal Sarsani**

*Bayesian Statistics* *Statistics 610 (Fall 2019)*

- Reproduced a Bayesian Mixture Model for Lung Cancer Prediction. The Bayesian model fitted some spatial interaction parameters between different cell types from medical image data. These parameters can then be used as predictors in Cox regression for cancer progression. [original paper],[report].

**Movie Recommender** **Collaborator: Steven Qiu**

*Recommender System* *CS 590OP (Fall 2019)*

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

**Image Denoising** **Collaborator: None**

*Computer vision, Monte Carlo Markov Chain (MCMC)* *Math 697AM (Spring 2019)*

- Used Ising Model and Gibbs Sampler to reconstruct images polluted by Gaussian noise. [report]