Long Le

🧠 AI, Reinforcement Learning
✉ lnle@umass.edu

in /long-le-a0aaa7121/
⌨ /vlongle
🌐 https://vlongle.github.io/

🎓 Education

University of Massachusetts Amherst   Sep. 2018 – Dec. 2021
Dual Bachelor of Science, Computer Science and Statistics   *Amherst, MA*

- **GPA**: 3.958/4.0.
- **Graduate Coursework:** 14 graduate-level courses. Selected courses:
  - **Computer Science**: Randomized Algorithms, Neural Dynamics, Stochastic Simulation, Algorithmic Game Theory.
  - **Math**: Convex Optimization, Numerical Methods.
  - **Statistics**: Stochastic Calculus, Stochastic Process, Measure-theoretic Probability.
- **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.

♟ Skills & Hobbies

Technical skills: Python, C++/C, SQL, Java, MATLAB, R.

Hobbies: Swimming, Chess, Cooking.

✒ Publications & Writings

- **Long Le**, Yao Li, "Supervised Neuronal Parameter Estimation from Spiking Trains" under review in *Journal of Mathematical Biology*. [link]

- **Long Le**, Dana Hughes, Katia Sycara "Hierarchical Multi-agent Reinforcement Learning in Urban Search and Rescue" working paper.

- **Long Le**, Yair Zick, Vignesh Viswanathan "Ability Coalitional Games" working paper.

- **Long Le** "Classical and Modern Approaches in Speech Recognition" [link].

</> Industry Experience

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

- 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 tradeoff (5-8x improvement) and other metrics.

📑 Research Experience

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

- 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
Research Assistant

Sep. 2018 – Present

Amherst, MA

> **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).
> **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
Teaching Assistant

Jan. 2019 – Present

Amherst, MA

> **Computer Science (CS)**:
>   – 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
Natural Language Processing

Collaborators: Hannah Lerner, Aparimit Chandra

CS 689 (Spring 2021)

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

Infectious Disease Network
Graph, Networks

Collaborator: None

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
Bayesian Statistics

Collaborators: Vishal Sarsani

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
Recommender System

Collaborators: Steven Qiu

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
Computer vision, Monte Carlo Markov Chain (MCMC)

Collaborators: None

Math 697AM (Spring 2019)

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