NIKHIL ADDLEMAN

Applied mathematics and statistics

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EDUCATION

PhD (Mathematical Behavioral Sciences)

University of California Irvine

August 2015 – September 2021

- Uncovered novel statistical results in the religious demography.
- Designed and developed mathematical models for evolutionary game theory research.
- Consulted by colleagues on machine learning and optimization problems: Recommended distance metrics for high-dimensional clustering problem and explained how it could be made parallel, cutting a weeks-long computation in half.

BS (Mathematics)

University of New Mexico

August 2011 – June 2015

- Presented original work on stochastic effects in epidemic models.

EXPERIENCE

Research Fellow – Statistics & ML

UC Irvine

October 2021 – Current Remote

- Advised biomedical research team on experimental design and statistical requirements of building a diagnostic classifier.
- Implemented a family of estimators as proofs of concept for classification based on genomic and demographic data.

Research Assistant

Economics Department, UC Irvine

March 2019 – June 2019 Irvine, CA

- Implemented dynamical economic models in Python to validate theoretical work and produce figures for publication.

Teaching Assistant

School of Social Sciences, UC Irvine

September 2015 – June 2021 Irvine, CA

- Communicated scientific and statistical concepts to undergraduates.
- Advised and mentored several students on research and career/graduate school.

COURSEWORK

Graduate courses

- Measurement theory, Probabilistic learning, Information theory, Probability & randomness, Bayesian cognitive modelling, Behavioral economics

TECHNICAL SKILLS

Statistics, machine learning & mathematics

- Computational statistics, linear and additive models, dynamical systems, causal inference, geospatial statistics, game theory, measurement theory

Programming & computation

- Python (NumPy, Pandas, scikit-learn, Matplotlib), Julia, Clojure, R, SQL, Git, scientific computing, agent-based modeling

PERSONAL SKILLS

- Excellent scientific communication to both experts and nonexperts.
- Comfortable designing and leading research programs.
- Welcoming and knowledgeable colleague.

WORKING PAPERS

Geographic Diversity in US Religious Denominations

- Characterized the distribution of USA religious groups at the denominational level. The first use of geospatial measures of autocorrelation in religious studies.

Chaos in a simple evolutionary model

- Presented a maximally simple population model with chaotic solutions illuminating chaotic phenomena in the social and biological sciences.

Convergence to equilibrium in a color-matching game

- Developed an agent-based model to simulate a color-matching game and implemented network statistics including spectral graph theory to analyze results.

Invasion Dynamics in Coordination Games Played on Networks

- Networks of agents playing economic games enable inefficient strategies to invade. This paper presents an infinite family of graphs susceptible to invasions beginning at particular vertices.