Allen Wu
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Education

Stanford University — Stanford, CA
MS, Management Science & Engineering. GPA: 3.92/4.00. — *2016 – 2018*

University of Chicago — Chicago, IL
BA, Mathematics. GPA: 3.89/4.00. — *2011 – 2015*
Honors: Phi Beta Kappa, Dean's List, National Merit Scholarship

Experience

Wizards of the Coast — Renton, WA
Game Design Contractor — *2017 – 2018*

- **Game Development**: Provided insight on the entertainment value, competitive balance, and replayability of new expansions for Magic: the Gathering, a strategy card game played by over 10 million people.
- **Challenger Decks**: Designed the 2018 Challenger Decks series, a popular and successful product aimed to give newer players an affordable entry point into competitive play.

Stanford — Stanford, CA
Course Assistant, Introduction to Decision Making — *Summer 2017*

- **Teaching**: Wrote and graded homework assignments and exams, held office hours, and advised students on a course project where they consulted with businesses and applied the tools taught in class.

Sandia National Laboratory — Albuquerque, NM
Intern, Resilience and Regulatory Effects — *Summer 2014*

- **Modeling Research**: Researched new economic models to evaluate their strengths and weaknesses.
- **Data Cleaning**: Inspected and processed government data sets for use in internal models.

Projects

Probabilistic Risk Analysis of Colorado Wildfires — *Spring 2018*

- Worked with officials, wildfire experts, and firefighters to determine the costs and benefits of implementing the International Wildland-Urban Interface Codes in Jefferson County, Colorado.
- Designed and implemented a highly modular Markov time-series model to predict wildfire behavior and damages.
- Transformed model outputs into intuitive infographics.

SBA Loan Risk Analysis — *Winter 2017*

- Predicted loan default and loss using linear and logistic regression, neural networks, and hazard rate modeling.
- Evaluated the risks of asset-backed securities and portfolios of loans.
- Compared the predictions, accuracy, sensitivity, and specificity of the different approaches.

Playing Blackjack with Deep Q-Learning — *Winter 2017*

- Implemented a blackjack state-machine following typical casino conventions.
- Constructed and trained a deep Q-network in PyTorch to determine the optimal blackjack policy.

Magic: the Gathering Hand Simulation — *Winter 2017*

- Developed a Monte Carlo simulation framework for generating and interpreting opening hands, using it to determine how consistent particular decks are and to find optimal deck configurations.

Skills

Fluent: Python (NumPy, SciPy, PyTorch, Pandas, Matplotlib), Java, Excel
Conversational: Clojure, Julia, TensorFlow, R, Stata, Spark, SQL, Mandarin
Communication: LaTeX, Markdown, Google Suite, Microsoft Office

Interests

Magic: the Gathering

- Competed for 2+ years on the Pro Tour, the highest level of organized play, winning Grand Prix Albuquerque 2016.
- Ranked #17 on the live Elo leaderboard, with a rating of 2117.
- Built models to analyze tournament results, improve in-game decision-making, and forecast player behavior.
- Published a series of articles on channelfireball.com, one of the top Magic content websites.