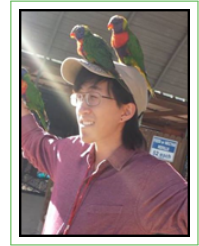# Hugh Chen

Curriculum Vitae

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Education

2016–201*   **Master of Science**, *University of Washington*, Seattle, WA, *GPA 3.72*.
Statistics - Advanced Methods and Data Analysis track.

2012–2016   **Bachelor of Arts**, *University of California, Berkeley*, Berkeley, CA, *GPA 3.85*.
Computer Science degree in the College of Letters and Science.

Honors and Awards

2017   **Travel Award**, *NIPS Machine Learning for Health Workshop*.

2016   **High Distinction in General Scholarship at Graduation**, *University of California, Berkeley*.

2015-2016   **Electrical Engineering and Computer Science Honors Program**, *University of California, Berkeley*.

2014-2016   **Member (former publicity officer, vice president, and president) of Upsilon Pi Epsilon, Computer Science Honors Society**, *University of California, Berkeley*.

Research Projects

2017   **Gabriel Erion, Hugh Chen, Scott Lundberg and Su-In Lee**, *"Anesthesiologist-level forecasting of hypoxemia with only SpO2 data using deep learning"*, Workshop paper. NIPS ML4H.
Link to paper.

2017   **Hugh Chen, Scott Lundberg, Su-In Lee**, *"Hybrid Gradient Boosting Trees and Neural Networks for Forecasting Operating Room Data"*, Workshop paper. NIPS ML4H.
Link to paper.

2017   **Hugh Chen, Scott Lundberg, Su-In Lee**, *"Checkpoint Ensembles: Ensemble Methods from a Single Training Process"*, Under Preparation.
Link to paper.

2016   **Hugh Chen, Yusuf B. Erol, Eric Shen, Stuart Russell**, *"Probabilistic Model-Based Approach for Heart Beat Detection"*, Physiological Measurement, Vol. 37, No. 9, August 2016*.
Link to paper. Link to Code.

Experience

Research

2016–201* **Research Assistant**, *Lee Lab - University of Washington*, Seattle, WA, Dr. Su-In Lee.
Several side projects: using expression/mutation data to identify driver genes and statistical analysis to identify drugs of interest based off of leukemic stem cell scores and drug sensitivity. My primary project involves applying deep learning to health prediction problems in operating room data.

2015–2016 **Research Assistant**, *Russell's Unusual Group of Students - University of California, Berkeley*, Berkeley, CA, Dr. Stuart Russell.
Worked on probabilistic modeling techniques (dynamic bayesian network) and state estimation (particle filter, Rao-Blackwellized particle filter) on health applications.

2013–2013 **Volunteer Research Intern**, *Artificial Intelligence Laboratory - University of Arizona*, Tucson, AZ, Dr. Hsinchun Chen.
Worked on spidering/parsing international hacker forums for cybersecurity applications.

Miscellaneous

2017–201* **Tutor**, *Prepcorps*, Seattle, WA.
Teaching GRE/GMAT – profits go to the Superkids Foundation, which aims to increase literacy in disadvantaged groups in Paraguay.

2015–2015 **Undergraduate Student Instructor**, *Discrete Math and Probability - University of California, Berkeley*, Berkeley, CA, Dr. Umesh Vazirani.
Taught two weekly one hour discussion sections, generated hw/exam problems, graded exams, and held office hours

2014–2015 **President, Vice President, Publicity Chair**, *Upsilon Pi Epsilon - University of California, Berkeley*, Berkeley, CA, Computer Science Honors Society.
Guided peers in organizing company info sessions, organizing tutoring/practice interviews, and setting up hackathons and a variety of other events.

2014–2014 **Software Engineering Intern**, *Location Labs*, Emeryville, CA.
Backend development (Restful Web API) as well as web development.

2013–2013 **Reader**, *Structure and Interpretation of Computer Programs (Self-Paced) - University of California, Berkeley*, Berkeley, CA.
Led lab sections, graded labs, homework, exams, and helped develop the course.

2012–2013 **Publicity Officer**, *Wonderworks - University of California, Berkeley*, Berkeley, CA.
Led science experiments for Oakland youth and guided my peers as an officer.

2012–2012 **English Teacher**, *AID Summer Program*, Taiwan.
Taught English to disadvantaged Taiwanese youth in rural areas.

Side Projects

2017 **Hugh Chen**, *"Investigation/Implementation of Stochastic Gradient Descent Variants"*, Investigation and implementation of different methodologies for stochastic gradient descent..

2017 **Hugh Chen**, *"Implementation of Nonparametric Methods"*, Tutorial that implements neural networks and KNN from scratch. Additionally implements gradient boosting trees using only sklearn's decision trees.

2017   **Hugh Chen**, *"Li and Stephens Model Paper Summary"*, Explanation of the Li and Stephens model, which has applications in many parts of genetics (haplotype phasing, linkage disequilibrium, recombination rates, etc.).

2017   **Hugh Chen**, *"Influential Factors for Gross Profit in Film"*, Analyzes rotten tomato and imdb data. Exercise in web scraping, dealing with genre factors, censored data, and linear regression.

2016   **Hugh Chen, Yiwen Song**, *"MAX-SAT Algorithms Survey"*, Brief discussion of a few MAX-SAT algorithms. Overall, a fun exploration of approaches for an NP-Hard problem.

Languages

Expert   **Java, C, C++, Python, Julia, R, Matlab, Git, and Latex.**

Intermediate   **Scheme, HTML, CSS, MIPS.**

Coursework

2016–201*   **Master of Science**, *University of Washington*, Seattle, WA.
Graduate Level:
- Statistical Inference (Michael Perlman)
- Design and Analysis of Experiments (Mathias Drton)
- Applied Regression (Elena Erosheva)
- Statistical Computing (Adrian Dobra)
- Statistical Genetics I: Mendelian Traits (Sharon Browning)
- Nonparametric Regression and Classification (Mathias Drton)
- Statistical Learning: Modeling, Prediction, and Computing (Fang Han)
- Advanced Regression Methods for Independent Data (Jon Wakefield)
- Analysis of Categorical and Count Data (Adrian Dobra)

2012–2016   **Bachelor of Arts**, *University of California, Berkeley*, Berkeley, CA.
- Structure and Interpretation of Computer Programs (Brian Harvey)
- Data Structures (Jonathan Shewchuk)
- Great Ideas in Computer Architecture (Randy Katz)
- Discrete Mathematics and Probability Theory (Umesh Vazirani)
- Introduction to Artificial Intelligence (Pieter Abbeel)
- Introduction to the Internet: Architecture and Protocols (Sylvia Ratnasamy)
- Efficient Algorithms and Intractable Problems (David Wagner)
- Introduction to Microelectronic Circuits (Michel Maharbiz)
- Combinatorics and Discrete Probability (Michael Jordan)
- Introduction to Machine Learning (Peter Bartlett, Alexei Efros)
- Operating Systems and Systems Programming (John Kubiatowicz)
- Structure and Interpretation of Signals and Systems (Babak Ayazifar)
- Foundations of Computer Graphics (Ren Ng)
Graduate Level:
- Combinatorial Algorithms and Data Structures (Christos Papadimitriou)