Hugh Chen

Curriculum Vitae

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Education

2018–**** **PhD in Computer Science**, *University of Washington*, Seattle, WA, *GPA 3.81*.

2016–2018 **MS in Statistics**, *University of Washington*, Seattle, WA, *GPA 3.79*.

2012–2016 **BA in Computer Science**, *UC Berkeley*, Berkeley, CA, *GPA 3.85*.

Research

2021 **Forecasting adverse surgical events using self-supervised transfer learning for physiological signals**, *Hugh Chen, Scott Lundberg, Gabe Erion, Jerry H. Kim, Su-In Lee. npj Digital Medicine*.

2020 **True to the Model or True to the Data?**, *Hugh Chen*, Joseph D. Janizek*, Scott Lundberg, Su-In Lee. ICML Workshop on Human Interpretability*.

2020 **Deep Transfer Learning for Physiological Signals**, *Hugh Chen, Scott Lundberg, Gabe Erion, Jerry H. Kim, Su-In Lee. ACM CHIL Workshop*.

2020 **Explaining Models by Propagating Shapley Values of Local Components**, *Chen, Hugh, Scott Lundberg, and Su-In Lee. AAAI Health Intelligence Workshop*.

2020 **Explainable AI for Trees: From Local Explanations to Global Understanding**, *Scott Lundberg, Gabriel Erion, Hugh Chen, Alex DeGrave, Jordan M. Prutkin, Bala Nair, Ronit Katz, Jonathan Himmelfarb, Nisha Bansal and Su-In Lee. Nature Machine Intelligence*.

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

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

2017 **Checkpoint Ensembles: Ensemble Methods from a Single Training Process**, *Hugh Chen, Scott Lundberg, Su-In Lee. arXiv preprint arXiv:1710.03282*.

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

Open Source

SHAP **TreeSHAP interventional**, *Created, implemented, and optimized (C++ and Cython) the default algorithm to explain tree models (decision trees, random forests, and gradient boosted trees), which is one of the most popular methods in the widely used SHAP package*, Github (15.6k stars), Interactive Article, Paper.

QRImage **QRImage**, *Free client-side javascript web app to turn images into valid QR codes*, Github (400 stars), Website, Video.

Experience

Industry

2021–2021 **Software Engineering Intern**, *Google*, Mountain View, CA.
Investigated and developed interpretability tools to utilize learning dynamics from deep models and added support for Shapley value feature attributions for tree models.

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

Research

2016–201* **Research Assistant**, *University of Washington*, Dr. Su-In Lee.
Two primary research directions: machine learning for operating room data involving transfer/representation learning and interpretable machine learning (feature attributions).

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

2013–2013 **Research Assistant**, *University of Arizona*, Tucson, AZ, Dr. Hsinchun Chen.
Worked on parsing international hacker forums for cybersecurity applications.

Teaching

2022–2022 **Teaching Assistant**, *Explainable AI*, Dr. Su-In Lee.

2020–2020 **Teaching Assistant**, *Computational Biology*, Dr. Su-In Lee.

2015–2015 **Teaching Assistant**, *Discrete Math and Probability*, Dr. Umesh Vazirani.

2013–2013 **Grader**, *Structure and Interpretation of Computer Programs (Self-Paced)*.

Honors

2017-2022 **Recipient of NSF Graduate Research Fellowship**.

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

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

2015-2016 **EECS Honors Program**, *University of California, Berkeley*.

2014-2016 **President of CS Honors Society (UPE)**, *University of California, Berkeley*.

Languages

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

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