

EDUCATION

University of Minnesota

Bachelor of Arts in Mathematics

Minneapolis, MN

September 1999 - May 2005

- Areas of focused study included formal logic, abstract algebra, information theory, probability, and theoretical computer science

Stanford Center for Professional Development

Graduate Certificate in Artificial Intelligence (GPA: 4.0)

Stanford, CA

March 2021 - March 2022

- Completed CS229 Machine Learning, CS107 Computer Organization and Systems, CS161 Design and Analysis of Algorithms, CS230 Deep Learning, CS224n Natural Language Processing using Deep Learning, and CS231n Deep Learning for Computer Vision

PUBLICATIONS

- Eric A. Mitchell, Joseph Noh, Siyan Li, William S. Armstrong, Ananth Agarwal, Patrick Liu, Chelsea B. Finn, and Christopher D. Manning. Enhancing self-consistency and performance of pre-trained language models with natural language inference. In *Proceedings of the 2022 Conference on Empirical Methods in Natural Language Processing*. Association for Computational Linguistics, 2022. (In press.)
- William S. Armstrong, Spencer Drakontaidis, and Nicholas Lui. Synthetic data for semantic image segmentation of imagery of unmanned spacecraft. In *2022 IEEE Aerospace Conference, Proceedings*. IEEE Computer Society, 2022. (In press.)

EXPERIENCE

Best Buy

Assoc. Director, Data Science Research & Development

Richfield, MN

April 2019 - April 2020, November 2020 - present

- Built a team of eight research-focused data scientists to explore applications of machine learning and artificial intelligence to enriching the customer experience through support and repair services, logistics, and physical asset investment strategy
- Led development of an AI system for diagnosis and repair of major appliances using multi-angle sequence to sequence transformers
- Provided strategic direction for a team of NLP-focused ML researchers focused on developing ontological search for bestbuy.com
- Led scientists and engineers in solution design and implementation of demand forecasting and price optimization systems

Cargill, Inc.

Senior Data Scientist

Wayzata, MN

April 2020 - November 2020

- Contributed to various predictive modeling, machine learning, and operations research projects around price elasticity, forecasting consumer demand, livestock management and welfare, and animal voice recognition

AIM Consulting

Data Science Consultant

Minneapolis, MN

August 2017 - April 2019

- Provided data science consulting services to several organizations, including a fortune 500 electronics retailer and a global customer loyalty consultancy
- Developed predictive models targeting customer churn, segmentation, intent-to-purchase, and propensity to return purchased items
- Communicated scope, context, scientific approach, and results to executive stakeholders

Elicit, LLC

Senior Data Scientist

Minneapolis, MN

May 2017 - August 2017

- Advanced media mix optimization for a global airline through an innovative model design using adaptive pooling through Bayesian mixed effects modeling

Ameriprise Financial

Senior Manager Econometrician

Minneapolis, MN

October 2016 - May 2017

- Led actuaries, product managers, and engineers in supporting the development of a next generation auto insurance product leveraging advanced risk modeling using internal and external customer data
- Developed a risk tier strategy using machine learning that segmented insurance losses more than twice as much as any single factor determining premiums in use by the company at that time
- Contributed to the development of a scientific computing platform, offering industry expertise and proofs-of-concept for open source 'big data' and machine learning technologies

LexisNexis Risk Solutions

Senior Statistical Modeler

Minneapolis, MN and Alpharetta, GA

February 2014 - October 2016

- Developed talent and capabilities in the LexisNexis statistical modeling group through mentoring, education, and organizing large scale model development projects
- Consulted in the sales, marketing, and regulatory approval process for LexisNexis insurance scoring solutions, offering technical and industry expertise
- Presented at an industry conference to educate the P&C insurance industry in the use of alternative credit data in insurance scoring
- Led development of a prototype scoring model for insurance risk using alternative credit data
- Built R packages facilitating best practices in predictive modeling for credit and insurance risk
- Designed a machine learning based approach to consumer fraud detection that later became the basis for LexisNexis's flagship consumer fraud detection score
- Invented a method of calculating FCRA-compliant reason codes for credit scores calculated from predictive models which consist of large ensembles of decision trees (e.g., gradient boosted trees, random forests)

National General Insurance Company (Formerly GMAC Insurance)

Product Research and Development Manager

Winston Salem, NC

February 2011 - February 2014

- Managed NGIC's product research and development team, directly reporting to VP of Corporate Analytics, hiring and developing actuaries, statisticians, and data scientists
- Led development of predictive models of insurance risk that formed the basis of NGIC's private passenger automobile pricing engine and rate classification
- Supported rate review process through filing, regulatory approval, and implementation by leading team in providing detailed studies and supporting material, collaborating with government officials through the regulatory review process of rate schedules
- Worked directly with software engineers to implement insurance rating systems for quoting and policy issuance
- Led research and development efforts targeting price optimization, underwriting and risk assessment, and lifetime customer revenue

Mendota Insurance

Actuarial Analyst

Eagan, MN

March 2008 - April 2020

- Collaborated with R&D Actuary to design and develop Mendota's first proprietary insurance risk models and rate classification plans
- Provided quarterly price indication models and supported product management in using these models to manage profitability
- Led development of financial forecasting models to outline goals for new policy acquisition and loss payment ratios

SKILLS & LANGUAGES

Programming languages

- python, C, C++, R

Frameworks

- pytorch, numpy, scikit-learn, tensorflow 2, CRAN, tidyverse