Samuel Showalter

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EDUCATION

PhD Student
UNIVERSITY OF CA, IRVINE
Computer Science, ML & AI
Advisor: Dr. Padhraic Smyth
📅 Aug 2020 - Present

M.S. Computer Science
UNIVERSITY OF CA, IRVINE
Computer Science, ML & AI
Advisor: Dr. Padhraic Smyth
GPA: 3.97 / 4.00
📅 Aug 2020 - June 2022

BA in Mathematics
BA in Economics
DEPAUW UNIVERSITY
Computer Science Minor
GPA: 4.00 / 4.00
📅 Aug 2014 - May 2018

AWARDS

NSF Graduate Research Fellowship : 3 years of full funding for my proposal of spatio-temporally robust machine learning models

HPI Fellowship (declined)
3 years of full funding from the Hasso-Plattner Institute to research robust ML

UCI ICS Dean's Award
$10,000 in recognition of outstanding research potential in computer science

Edward Rector Scholarship
DePauw's full-ride merit scholarship; one of 12

Prindle Technology Prize
DePauw's outstanding technology research project

H.E.H. Greenleaf Award
Awarded to the outstanding mathematics graduate

Frank T. Carlton Award
Awarded to the outstanding economics graduate

Randal L. Wilson Award
Most outstanding junior economics major

EXPERIENCE

Applied Scentist: Personalization
AMAZON SCIENCE 📅 June 2022 - Sept 2022 📍Irvine, CA
- Re-designed Amazon's core feed ranking model for high-engagement shop-by-interest
- Implemented five state-of-the-art multi-task learning algorithms with MultiRec 🔗.
- MultiRec outperformed baselines by 10^+% over multiple metrics. Presentation: 🔗
- Published multi-task learning paper in Amazon's internal machine learning conference

Machine and Reinforcement Learning Researcher
SRI INTERNATIONAL 📅 June 2021 - Sept 2021 📍Menlo Park, CA
- Researcher with Stanford Research Institute's Competency-aware ML (CAML) team
- Proposed and built CAMeLeon, a RL competency toolkit (**open-sourced by SRI**)
- Presented findings highlighting RL failure modes to entire company as invited speaker **open-sourced by SRI to the research community**

Data Science Experienced Consultant
WEST MONROE 📅 Aug 2018 - Aug 2020 📍Chicago, IL
- Lead data scientist, NLP semantic context extraction for **one of world's largest banks**
- Developed end-to-end, highly-optimized ML pipeline to extract semantic context from 20,000+ databases and filestores with Spark, HDFS, Luigi, Airflow, and Viterbi parsing.
- **Co-winner ($300k),**WMP's Innovation Challenge: Auto-ML prototyping framework

Quantum Computing Research Fellow
NIST 📅 May 2018 – Aug. 2018 📍Boulder, CO
- **Highly selective** national research fellowship (**13% acceptance**) in quantum computing
- Developed Python-based quantum state tomography software to characterize qubits

Data Scientist, Custom Insights
84.51° 📅 May 2016 – Aug. 2016 📍Cincinnati, OH
- Built outlier detection system for Kroger customer data; **saves 4 - 8 hours per dataset**

RESEARCH

Predictive Querying for Autoregressive Neural Sequence Models
UC IRVINE 📅 Feb. 2022 – Sept. 2022 📍Irvine, CA
- Explored sequence models to answer complex probabilistic queries (e.g. "A before B")
- Published in **NeurIPs 2022** as the first exploration of probabilistic neural querying

Optimizing Spatio-temporal Novelty Detection for Video
UC IRVINE (DARPA) 📅 Aug. 2020 – Dec. 2021 📍Irvine, CA
- Develop state-of-the-art deep-learning novelty detection methods for images and video
- Created adaptive novelty thresholding system that sufficiently adjusts to domain shifts

Minimizing Societal Cost of Credit Card Fraud with Machine Learning
DEPAUW UNIVERSITY (DPU) 📅 Jan. 2018 – May 2018 📍Greencastle, IN
- Explored fraud cost optimization with novel loss function; **won Prindle Technology Prize**
- Presented at Rose-Hulman Mathematics Conference and DePauw poster session

Validating Weak-form Stock Market Efficiency with Machine Learning
DEPAUW UNIVERSITY (DPU) 📅 Jan. 2018 – May 2018 📍Greencastle, IN
- Investigated weak-form efficient market hypothesis with ML-driven trading platform
- **Won the Frank T. Carlton Economics Award** for outstanding econometrics research

SKILLS

Programming Languages
Python | R | SQL | Java | C++ | Scala | Javascript

Distributed Computing
CUDA | Spark | Ray

Machine Learning Libraries
PyTorch | Tensorflow | Scikit-Learn | OpenCV | RLlib | Gym | NumPy

Cloud Computing
AWS | SageMaker | GCP

CERTIFICATIONS

SOA Actuarial Exam P
SOA Actuarial Exam FM
AlgoExpert 100 Exercises

SOCIETIES

Phi Beta Kappa
Omicron Delta Epsilon

PUBLICATIONS

- Boyd, A.* and **Showalter, S.***, et. al. **Predictive Querying For Autoregressive Neural Sequence Models**. Neural Information Processing Systems (NeurIPs) 2022.

- **Showalter, S.** et. al. **Reframing Crisis Information Extraction as a Lexically Invariant Sequence Tagging Objective with Twitter Data**. Preprint 🔗, 2021.

- **Showalter, S.** and Wu Z. **Minimizing the Societal Cost of Credit Card Fraud with Limited and Imbalanced Data**, arXiv:1909.01486, 2019.

- **Showalter, S.** and Gropp J. **Validating Weak-form Market Efficiency in U.S. Securities with Trend Deterministic Price Data and Machine Learning**, arXiv:1909.05151, 2019.

- Berque D., Chiba H., Hashizume A., Kurosu M. and **Showalter S. Cuteness in Japanese Design: Investigating perceptions of Kawaii among American College Students**, Applied Human Factors and Ergonomics, July 2018, Springer.

LEADERSHIP

Founder & President
DPU DATA SCIENCE GROUP   📅 Apr. 2017 – May 2018   📍 Greencastle, IN
- Created and led 30+ student data science, machine learning, and AI campus group 🔗
- 3rd **place** in St. Mary's College Data Science Hackathon in 2018, 1st **place** in 2019

CTO & Co-President
DPU INVESTMENT GROUP   📅 Apr. 2017 – May 2018   📍 Greencastle, IN
- **Managed $170,000** of university endowment funding as well as trades and risk analysis
- Assisted in funding pitch to alumni donors that was **accepted in 2019 for $1 million**

OUTREACH AND MENTORSHIP

High School/College Research Advisor: Machine Learning
LUMIERE EDUCATION   📅 May. 2021 – Present   📍 Remote
- Lumiere pairs PhD candidates with young, driven students passionate about research
- Projects include NLP and Markov Chains, stochastic processes, and variational inference

Content Creator & Instructor: Machine Learning Bootcamp
WEST MONROE   📅 Mar. 2019 – Dec. 2019   📍 Chicago, IL
- Co-creator of company-wide ML bootcamp, including lecture content and assessments
- Lecturer for topics including classification, regularization, and unsupervised learning

Teaching Assistant: Data Science (CS 370)
DEPAUW UNIVERSITY (DPU)   📅 Jan. 2018 – May 2018   📍 Greencastle, IN
- Chosen as TA for **first-ever** Data Science course at DPU because of my experience in field
- Held weekly office hours, advised student projects, and curated homework assignments

Student Career Advisor & Tutor
DEPAUW UNIVERSITY (DPU)   📅 Aug. 2015 – May. 2017   📍 Greencastle, IN
- Staffed by McDermond Center for Entrepreneurship to assist students in job search
- Reviewed resumes, ran mock interviews, and tutored students in calculus and statistics

Elementary School Tutor: Mathematics
CLOVERDALE ELEMENTARY   📅 Aug. 2014 – May 2016   📍 Cloverdale, IN
- Tutored 2nd and 3rd grade students in basic math as part of STEM after-school program