Alex Boyd

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Education

University of California, Irvine — Irvine, CA
Ph.D. Statistics — 2018 - 2024
Advisors: Dr. Padhraic Smyth & Dr. Stephan Mandt — GPA: 4.00 / 4.00

California Polytechnic State University — San Luis Obispo, CA
B.S. Software Engineering (w/ Data Science Minor) — 2014 - 2018
Advisor: Dr. Dennis Sun — GPA: 4.00 / 4.00

Research Interests

I am primarily interested in probabilistic and generative models for structured and sequential data, such as sparse event sequences, time series, and natural language. Special interest is given towards applying these methods towards user-facing and healthcare applications.

Publications

A. Boyd, A. Warrington, T. Kass-Hout, P. Bhatia, and C. Xiao, 'Hyper Hawkes Processes: Interpretable Models of Marked Temporal Point Processes,' *(currently under review)*, 2025.

A. Chang, L. Huang, A. Boyd, P. Bhatia, T. Kass-Hout, C. Xiao, and F. Ma, 'MedSight: Towards Grounded Visual Comprehension in Medical Large Vision-Language Models,' *(currently under review)*, 2025.

C. Li, A. Elmahdy, A. Boyd, Z. Wang, A. Garcia, P. Bhatia, T. Kass-Hout, C. Xiao, and M. Hong, 'ST-PPO: Stabilized Off-Policy Proximal Policy Optimization for Multi-Turn Agents Training,' *(currently under review)*, 2025.

Y. Chang*, A. Boyd*, C. Xiao, T. Kass-Hout, P. Bhatia, P. Smyth, and A. Warrington, 'Deep Continuous-Time State-Space Models for Marked Event Sequences,' *Advances in Neural Information Processing Systems 38 (NeurIPS)*, 2025. [**Spotlight Presentation**]

A. Chang, L. Huang, A. Boyd, P. Bhatia, T. Kass-Hout, C. Xiao, and F. Ma, 'Focus on What Matters: Enhancing Medical Vision-Language Models with Automatic Attention Alignment Tuning,' *Proceedings of the 63rd Annual Meeting of the Association for Computational Linguistics (ACL)*, 2025.

M. Kelly, A. Boyd, S. Showalter, M. Steyvers, and P. Smyth, 'Bayesian Inference for Correlated Human Experts and Classifiers,' *Proceedings of the 42nd International Conference on Machine Learning (ICML)*, 2025.

E. Wong-Toi, A. Boyd, V. Fortuin, and S. Mandt, 'Understanding Pathologies of Deep Heteroskedastic Regression,' *Proceedings of the 40th Conference on Uncertainty in Artificial Intelligence (UAI)*, 2024. [**Oral Presentation**]

S. Showalter*, A. Boyd*, P. Smyth, and M. Steyvers, 'Bayesian Online Learning for Concensus Prediction,' *Proceedings of the 27th International Conference on Artificial Intelligence and Statistics (AIStats)*, 2024.

Y. Chang, A. Boyd, and P. Smyth, 'Probabilistic Modeling for Sequences of Sets in Continuous-Time,' *Proceedings of the 27th International Conference on Artificial Intelligence and Statistics (AIStats)*, 2024. [**Oral Presentation**]

A. Boyd, Y. Chang, S. Mandt, and P. Smyth, 'Inference for Mark-Censored Temporal Point Processes,' *Proceedings of the 39th Conference on Uncertainty in Artificial Intelligence (UAI)*, 2023. [**Spotlight Presentation**]

A. Boyd, Y. Chang, S. Mandt, and P. Smyth, 'Probabilistic Querying of Continuous-Time Event Sequences,' *Proceedings of The 26th International Conference on Artificial Intelligence and Statistics (AIStats)*, 2023.

A. Boyd*, S. Showalter*, S. Mandt, and P. Smyth, 'Predictive Querying for Autoregressive Neural Sequence Models,' *Advances in Neural Information Processing Systems 35 (NeurIPS)*, 2022. [**Oral Presentation**]

A. Alexos*, A. Boyd*, and S. Mandt, 'Structured Stochastic Gradient MCMC,' *Proceedings of the 39th International Conference on Machine Learning (ICML)*, 2022.

A. Li, A. Boyd, P. Smyth, and S. Mandt, 'Detecting and Adapting to Irregular Distribution Shifts in Bayesian Online Learning,' *Advances in Neural Information Processing Systems 34 (NeurIPS)*, 2021.

P. Putzel, H. Do, A. Boyd, H. Zhong, and P. Smyth, 'Dynamic Survival Analysis for EHR Data with Personalized Parametric Distributions,' *Proceedings of the 6th Machine Learning for Healthcare Conference (MLHC)*, 2021.

A. Boyd, P. Smyth, R. Bamler, and S. Mandt, 'User-Dependent Neural Sequence Models for Continuous-Time Event Data,' *Advances in Neural Information Processing Systems 33 (NeurIPS)*, 2020.

A. Boyd, R. Puri, M. Shoeybi, M. Patwary, and B. Catanzaro, 'Large Scale Multi-Actor Generative Dialog Modeling,' *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL)*, 2020.

Professional Experience

AI Research Scientist — Bellevue, WA
GE HealthCare — 2024 - Present

· Implementing RAG framework to automate clinical trial matching for cancer patients
· Developing internal-facing package for automated ML workflows, agentic integrations, and parallel task execution
· Researching zero-shot time series forecasting techniques to model hospital operational demand

Applied Machine Learning Research Intern Cupertino, CA
Apple 2021

· Researched new techniques to automate processing and tagging of information in documents (Document AI) to improve business process efficiency
· Leveraged few-shot learning approaches to allow for Document AI to be used across many situations with few ground-truth labels

Deep Learning Research Intern for Program Synthesis Redmond, WA
Microsoft Research 2020

· Researched new methods for contextual time extraction from natural language utterances (emails) via program synthesis to help automatically schedule meetings
· Designed a domain specific programming language and associated interpreter to accurately describe complex sets of time intervals
· Created a model training regime that utilized both direct supervision with teacher forcing and indirect supervision with REINFORCE and a novel reward based on Wasserstein distance

Applied Deep Learning Research Intern Santa Clara, CA
NVIDIA 2019 - 2020

· Researched new dialog modeling techniques with transformers for the purposes of better response generation, longer conversational contexts, and more fine tuned control of an agent's "personality"
· Extracted millions of multi-turn conversations with millions of different users from Reddit to ensure natural sounding training material as well as a diverse amount of talking points

Machine Learning Intern Pleasanton, CA
Workday 2018

Data Science Intern Pleasanton, CA
Workday 2017

R Shiny App Developer Remote Locations
Contracted by Dr. Roxy Peck 2017

Software Engineering Intern Goleta, CA

Toyon Inc. 2016

Teaching Experience

Head Teaching Assistant for Intro to Machine Learning Irvine, CA
School of ICS - UCI 2023

Teaching Assistant for Intro to Statistics Irvine, CA
School of ICS - UCI 2018

Supplementary Mathematics Workshop Leader San Luis Obispo, CA
Student Academic Services - Cal Poly 2016 - 2018

Introduction to Data Science Teaching Assistant San Luis Obispo, CA
Statistics Department - Cal Poly 2017

Study Session Leader San Luis Obispo, CA
Student Academic Serivces - Cal Poly 2015 - 2016