Brendan Crowe

Boulder, CO — brendanjcrowe.com — LinkedIn — GitHub

EDUCATION

University of Colorado, Boulder — Boulder, CO
Doctoral Student, Computer Science. GPA 3.97 — *August 2023 – Present*

University of New Hampshire — Durham, NH
Bachelor of Science, Statistics. GPA: 3.73 — *August 2017 – May 2021*

Undergraduate Research Assistant:

- Developed a novel Imitation Learning framework focused on robust optimization, formulating Inverse Reinforcement Learning (IRL) as a linear program.
- Proved mathematical equivalence between Maximum-Entropy and Maximum-Likelihood expressions within the proposed framework.
- Co-authored and published research on robust behavior cloning in *NeurIPS Robot Learning Workshop* and *IROS 2021*.

WORK EXPERIENCE

Ultra Electronics — Austin, TX
Machine Learning Engineer — *August 2021 – August 2023*

- Developed self-attention based time-series forecasting models to detect anomalies in multi-modal sensor tracks, including Radar, AIS, and ADSB.
- Leveraged ResNet architectures to automate quality assurance by identifying solder voids on circuit boards, significantly reducing manual inspection overhead.
- Operationalized serverless ML applications for internal stakeholders, optimizing infrastructure to reduce operational costs.

Brands Express LLC — Kittery, ME
Software/Data Engineer — *August 2019 – August 2021*

- Orchestrated end-to-end machine learning pipelines to optimize inventory diversity and volume under strict resource and budget constraints.
- Implemented and deployed Generalized Linear Models (GLM) to predict sales volume, informing inventory management and product research strategies.
- Designed and executed RESTful API integrations to synchronize data between central databases and various selling channels.

PUBLICATIONS

1. Xujia Zhang, Brendan Crowe, and Christoffer Heckman. Octree latent diffusion for semantic 3d scene generation and completion, 2025

2. Lorin Achey, Alec Reed, Brendan Crowe, Bradley Hayes, and Christoffer Heckman. Robust robotic exploration and mapping using generative occupancy map synthesis. *Autonomous Robots*, 50(1), December 2025

3. Alec Reed, Lorin Achey, Brendan Crowe, Bradley Hayes, and Christoffer Heckman. Online diffusion-based 3d occupancy prediction at the frontier with probabilistic map reconciliation. In *2025 IEEE International Conference on Robotics and Automation (ICRA)*, pages 2846–2852, 2025

4. Alec Reed, Brendan Crowe, Doncey Albin, Lorin Achey, Bradley Hayes, and Christoffer Heckman. Scenesense: Diffusion models for 3d occupancy synthesis from partial observation. In *2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 7383–7390, 2024

5. Mostafa Hussein, Brendan Crowe, Madison Clark-Turner, Paul Gesel, Marek Petrik, and Momotaz Begum. Robust behavior cloning with adversarial demonstration detection. In *2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 7858–7864, 2021

6. Mostafa Hussein, Brendan Crowe, Marek Petrik, and Momotaz Begum. Robust maximum entropy behavior cloning. *ArXiv*, 2021