

# Ethan Callanan

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## Work Experience

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### Director of Research - QMIND

Kingston, ON

**PYTHON, PYTORCH, TENSORFLOW, SPACY, NLTK, NUMPY, PANDAS, MATPLOTLIB**

Sept. 2020 - Present

- Managing 4 research projects; Previously managed 5 client projects and 1 internal design project
- Leading development of a brain computer interface using an EEG and ML classification
- Advising project managers on technical decisions and team management operations
- Created onboarding packages and technical training resources on ML techniques, and lectured to >60 new members

### Software/Data Engineer - Praxis Pioneering

Miami, FL

**PYTHON, JUPYTER, PANDAS, SQL, DBT, BIGQUERY, POSTGRESQL, TIMESERIES FORECASTING**

May. 2022 - Aug. 2022

- Built >60% of the flagship product alpha, used internally for financial forecasts of over \$30B in transactional volume
- Automated data ETL pipelines using dbt and BigQuery SQL for large datasets (>10 trillion rows)
- Performed data cleaning and feature engineering for a timeseries forecasting model, leading directly to >\$200M in savings for the client (a multinational music company)
- Excelled in the fast-paced, initiative driven environment, requiring competent work in many roles

### Head of Data Science - Arke News

Kingston, ON

**PROJECT MANAGEMENT, NLP, BERT, BACKEND DEVELOPMENT**

Dec. 2021 - Aug. 2022

- Led development of NLP classification models for news article political bias
- Managed a team of 5 ML developers, providing guidance on core model and data decisions
- Built the API for the news website to retrieve and modify article and user data

### Research Intern - Mu Lab

Kingston, ON

**PYTHON, TARSKI, PROPOSITIONAL LOGIC, PDDL, LIBRARY DEVELOPMENT**

May. 2021 - Sept. 2021

- Presented at the KEPS workshop at ICAPS 2022, and co-authored the accompanying research paper
- Developed the first comprehensive library for action model acquisition from state trace data
- Designed the intuitive, feature-rich library API and core data structures
- Implemented complex theoretical algorithms by thoroughly understanding research papers and translating into code
- Created powerful data visualizations for trace and model understanding
- Awarded an Undergraduate Student Research Award

### Full-Stack Developer - Royal York Property Management

Toronto, ON

**TYPESCRIPT/JAVASCRIPT, REACT, GRAPHQL, MYSQL, NODE.JS, AWS, DOCKER**

May. 2020 - Oct. 2020

- Developed a web-application to modernize the client experience and internal business practices
- Led backend development consistently ahead of schedule
- Performed a frontend overhaul, which involved writing 8000+ lines of (approved) production code in 2 weeks

## Projects

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### Attention Detection for Virtual Assistant Activation

Machine Learning

**PYTHON, PYTORCH, TORCHVISION, OPENCV, NUMPY, CNN, MTCNN**

- Developed computer vision models for face detection and human attention classification
- Led a team of 3 to build a web app and demo virtual assistant, and integrate the models with the assistant
- Presented and demoed the project at CUCAI 2021
- Authored an award winning research paper, published through the conference proceedings

### Praxis Timeseries Interface

Software Development

**PYTHON, JUPYTER [NOTEBOOKS/LAB/KERNEL], PANDAS, PLOTLY, DASH, DARTS**

- Designed and built a majority of the core functionality for Praxis' flagship product
- Refactored hundreds of lines of code, doubling the speed of subsequent development (measured in tickets completed per week of similar difficulty)
- Debugged a critical issue in complex asynchronous code interfacing with the IPykernel

## Education

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### Queen's University

Kingston, ON

**BACHELOR OF COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE**

Sept. 2019 - Present

- Awarded the Queen's University Excellence Scholarship and the Dean's Honour List (2019-2022)
- Teaching assistant for Intro to Computing Science and Logic for Computing Science
- 4.09 / 4.3 GPA | Notable courses: Artificial Intelligence, Reinforcement Learning, Neural and Genetic Computing, Data Analytics, Algorithms, Data Structures, Systems Neuroscience, Probability and Statistics, Consciousness