Ismail Ouazzani

Email: the.ismail.ouazzani@gmail.com | Linkedin: linkedin.com/in/IsmailOuazzani
Website: ismailouazzani.com | Phone: (+1) 647 979 4005

Education

University of Toronto September 2020 – May 2025
Engineering Science, Major in Robotics Engineering *Toronto, Canada*

Experience

Software Engineer Intern Sep 2023 – Aug 2024
Sanctuary AI *Vancouver, Canada*

- Designed and implemented an end-to-end automated data pipeline to annotate and process 30GB/day of robot telemetry into datasets used by AI researchers to train models for humanoid robots
- Developed an automated data quality validation pipeline that notifies robot operators of incomplete or anomalous data in near real time, ensuring consistent data integrity and reducing manual oversight
- Contributed 140+ merge requests across data collection, software platform and simulation team repositories
- Solved 50+ bug issues and provided assistance to other teams during on-call rotations
- Administered company databases, MLOps tools and data collection infrastructure

Research Intern May 2022 – Aug 2022
Polytechnique Montreal *Montréal, Canada*

- Contributed to the development of an open-source drone for swarm robotics experiments, which included having:
- Implemented range detection by integrating time-of-flight sensors to the drone's onboard computer (Raspberry Pi)
- Designed & 3D-printed structural components to accommodate a 45% increase in the drone's weight

Projects

Vision-Language Model for Robot Success Detection | *PyTorch, Pandas* Dec 2024

- Led a 3-person team to fine-tune a vision-language model to automate the labeling of robot demonstrations as successes or failures to minimize reliance on human annotations
- Developed data processing scripts to generate 170,000+ labeled training samples from the Droid dataset
- Fine-tuned 1B/2B models on 8 A100 GPUs via Low-Rank Adaptation, cutting trainable parameters by 98%
- Published a Docker image to DockerHub with InternVL fine-tuning dependencies for reproducibility

Pick and Place Robot Arm | *Robotic Manipulation, MATLAB* Nov 2023 – Oct 2024

- Implemented a pick-and-place task on a physical industrial KUKA robotic arm using gradient descent
- Derived Denavit–Hartenberg (DH) parameters to develop forward and inverse kinematics models of the arm

Atomic Chess AI | *PyTorch, Numpy, CNN, Leadership, Communication* Feb 2023 – Apr 2023

- Led a team of 4 students to build an AI capable of playing the chess variant Atomic Chess
- Designed and trained a heuristic function using convolutional neural networks to estimate the value of a move
- Researched state-of-the-art approaches to chess heuristics by reviewing papers on deep learning applied to chess
- Developed and automated data processing scripts to efficiently preprocess a dataset of 3,000,000 data points

Delivery Robot | *Linux, Bayesian Inference, Sensor fusion* Sep 2022 – Dec 2022

- Implemented the state estimation and control algorithms for a ground robot for a delivery task
- Implemented a Particle Filter to track the robot's position after starting from a random location
- Achieved smooth line following by programming and tuning a PID controller
- Improved localization accuracy of the robot by fusing LiDAR and odometry measurements using a Kalman Filter

Skills

Programming: Python, C++, SQL, Bash
Tools/Frameworks: Git, Docker, ROS, LaTeX
Cloud: AWS, Azure, Cloud Development Kit, Bicep
Libraries: PyTorch, NumPy, Pandas, ClearML
Project Management: Confluence, Jira
Languages: English (Fluent), French (Native), Spanish (Intermediate), Arabic (Beginner)

Interests: Salsa dancing, Surfing, Guitar