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RAVI K HAMMOND

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Education

The University of Adelaide — Adelaide, Australia   Jul 2021 – Jul 2023
Master of Philosophy, Artificial Intelligence

The University of Adelaide — Adelaide, Australia   Mar 2014 – Nov 2019
Bachelor of Computer Science, GPA: 6.7 / 7

Research

Co-first Author — ICRA   Sep 2021
Robotic Vision for Space Mining. This paper describes our award-winning solution to the NASA Space
Robotics Challenge Phase 2. Our system comprises of a fleet of decentralised autonomous lunar rovers that
can self-localise, detect objects using computer vision, interact using fine-grained motor controls.

Summer Research Scholarship — The University of Adelaide   Nov 2018 – Feb 2019
I trained a robot arm to mimic human tasks, such as picking up rubbish and putting it in a bin. In order for the
robot arm to remember past states, I created an LSTM neural network that uses a CNN to convert camera
frames to real-world mechanical velocities. (Python, PyTorch)

Awards

3rd Place — NASA Space Robotics Challenge Phase 2   Sep 2021
Team University of Adelaide solution. Prize money: $75,000 USD.

Innovation Award — NASA Space Robotics Challenge Phase 2   Sep 2021
For our system that considered rover power consumption when searching for resources.

1st Place — Unearthed Hackathon, Adelaide   Oct 2015
Developed a machine learning solution to infer minerals based on the spectral analysis of drill samples.

1st Place — CommBank & University of Adelaide Hackathon   Jul 2015
Developed an app that allowed Point-Of-Sale transactions with immediate and reliable inventory reconciling.

Work Experience

Project Lead — NASA Space Robotics Phase 2   Feb – Sep 2021
Lead a team of 40+ engineers to develop team University of Adelaide's solution to the Space Robotics
Challenge. The goal of this challenge was to program a fleet of robots to autonomously find, excavate, and
retrieve resources from a simulated lunar environment. Key challenges included no GPS, unknown resource
deposits, hazardous terrain, and complex robot interactions (Python, ROS).

Machine Learning Engineer Intern — Atlassian   Nov 2020 – Feb 2021
Worked on the machine learning platform team that streamlines the training and serving of machine learning
models to Atlassian products. I created a simple-to-use library that automates the model feature selection,
model training, and feature cost estimation (Python).

Casual Teacher — The University of Adelaide   Jul 2015 – Nov 2020

I ran tutorials, workshops, practicals, and marked exams for first year programming students. I taught Introduction to Programming, Object Oriented Programming, Algorithm Design & Data Structures, and Introduction to Software Engineering.

Software Engineer Intern — Google   Dec 2019 – Feb 2020

Turnup Automation for Google Cloud Storage (GCS). I wrote software that requests compute resources for new clusters, and turns up Cloud Storage once resources have landed (Python). My work saves 1000+ engineering hours a year, and increases the reliability of Cloud Storage on new clusters.

Research Assistant — Australian Institute of Machine Learning   Nov 2018 – Feb 2019

I trained a robot arm to mimic human tasks, such as picking up rubbish and putting it in a bin. In order for the robot arm to remember past states, I created an LSTM neural network that uses a CNN to convert camera frames to real-world mechanical velocities. (Python, PyTorch, ROS)

Software Engineer Intern — Microsoft   Jan 2017 – Apr 2017

Worked on the user interface for Windows Universal Mail app. I implemented a feature that allows email recipients to be represented as graphical objects instead of formatted text within the recipient address bar. I also improved the performance of the application by solving multi-threaded task queueing issues. (C++)

Forward Deployed Engineer, Intern — Palantir Technologies   Dec 2015 – Mar 2016

Worked on a standalone aid relief coordination app that helped save dozens of lives throughout the Cyclone Ula disaster in Tonga, and wrote scripts to filter useful information from the noisy database. (Javascript, SQL) I also refactored neglected legacy code, and delivered product changes to the Australian Government. (Java)

Android Developer — MyEvidence   Apr 2015 – Nov 2015

Worked on an Australian police case database app that entirely digitised the collection, sharing, storage, and analysis of case data. I reduced 25% of the codebase through module reusability, I created a website API using the Laravel framework, and I extended and refined the app's user interface. (Android, Java, PHP)

Projects

LSTM Camera Game   Nov 2018

Wrote a python application that allows users to record keyboard movements, and trains an LSTM neural network to learn and re-produces the recorded actions. (Python)

Forest Drive   May 2018

For my final Computer Graphics project, I built a 3D forest using OpenGL. The forest is navigated in a drivable sports car, and the trees can be interacted with using hitbox detection. (C++)

Passage   Oct 2014

A Flappy-Bird-like computer game where the player must dodge incoming obstacles. The program runs in the terminal, and displays graphics using ascii characters. Complete with power-ups and a high scores list. (C++)
Displayed at the Adelaide University Engineering exhibition ingenuity.

Skills and Languages

Python	React	Teaching
Java	PyTorch	Robotics
C++	Android	Machine Learning
ROS	SQL	Computer Vision
BASH	Leadership	Artificial Intelligence