

ANDI QU

I Build Stuff

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EXPERIENCE

Undergraduate Research Assistant

USAF-MIT AI Accelerator

Dec 2021 – May 2021

Cambridge, MA

- Used the Unity game engine to create games that simulate real-life flight tasks and conditions
- Trained autonomous flight agents using reinforcement learning to help assist human pilots
- Experimented with a new curiosity module in RLLib to promote intrinsic exploration

Undergraduate Research Assistant

MIT Computer Science and Artificial Intelligence Laboratory

Sep 2021 – Dec 2021

Cambridge, MA

- Used the Z3 theorem prover to design an experimental hardware compiler
- Implemented an algorithm to support circuit paths that span arbitrarily many segments and layers
- Added support for 3D visualizations of generated designs using KLayout

Junior Developer

Business Science Corporation

Jan 2021 – Aug 2021

Johannesburg, ZAF

- Created an internal Excel add-in for tracking project revenue and employee allocations using Office.js and Azure functions
- Helped build automation tools for Rand Merchant Bank and Woolworths using Angular and ASP.NET
- Created data visualizations for Imperial Logistics using Plotly to optimize fuel spend

Core Team Member

USACO Guide

Jun 2020 – Dec 2021

- Write solution analyses for the practice problems presented in the guide to help students excel in USACO contests
- Co-author learning modules for topics like the Knuth-Morris-Pratt algorithm used in the Gold and Platinum divisions

EDUCATION

Bachelor's Degree

Massachusetts Institute of Technology

2021 – 2025

Cambridge, MA

High School

St John's College

2016 – 2020

Johannesburg, ZAF

AWARDS



International Olympiad in Informatics
bronze medal

2020 and 2021 – Singapore



International Mathematics Olympiad
bronze medal

2020 – St Petersburg, Russia



South-African Programming Olympiad
winner

2019 and 2020



South-African Mathematics Olympiad
winner

2017 and 2020



Pan-African Mathematics Olympiad
silver medal

2019 – Cape Town, South Africa



Google Code-In grand prize winner
2018 – Apertium

TECHNICAL SKILLS

C++

Mathematical problem-solving

Competitive programming

Git

Python

Django

Flask

Plotly

Pandas

Discord.py

JavaScript

AngularJS

React

C#

Azure Functions

Unity

EF Core

Blazor

ASP.NET

Lisp

Racket

Z3 theorem prover