

# RAVYU SIVAKUMARAN

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📍 Urbana, IL

🌐 Ravyu

🔗 RavyuS

## EDUCATION

Bachelors in Science, Computer Science — **University of Illinois at Urbana-Champaign**

📅 May 2023 GPA: 4.0/4.0

## WORK EXPERIENCE

Software Development Engineer Intern — **Amazon Web Services**

📅 Jun 2022 – Aug 2022

- Worked in the Redshift data share team which owns the table sharing protocol to provide inter-database, account, and region table sharing in an easy and secure manner
- Revamped encryption key management system for cross-database transactions, reducing unauthorized access windows from several hours to 10 minutes
- Wrote tests in pytest to determine suitable key lifespan periods for different cross-database workloads based on usage metrics

Undergraduate Research Assistant - Autonomous Vehicle Research

📅 Aug 2021 –

- Researching autonomous technology under Professor Talebpour to develop a self-driving car for a ride-share service in Rantoul
- Developing SLAM-based motion planning, object detection and control systems in ROS to implement self-driving software into a modified Jeep Cherokee
- Working with 30 researchers to achieve level-4 autonomy on rural roads through extensive data-collection, simulations, and real-life testing at the Illinois Center for Transportation to realize the safety and ubiquity of self-driving cars on national roads

Software Design Studio Course Assistant — **UIUC CS Department**

📅 Jan 2021 – May 2021

- Taught students on programming fundamentals: Object Oriented Programming (Java/C++), black box testing, build automation tools (Cmake)
- Assessed and graded students code on weekly projects, with an emphasis on strong programming practices (modularity, object decomposition, encapsulation, documentation, testing)
- Hosted weekly Code Review sessions to facilitate discussion on programming practices with students

## LEADERSHIP

President — **Singapore Students Association**

📅 Mar 2021 – Mar 2022

- Led a committee of six to manage an organization of approximately sixty members
- Spearheaded several initiatives including partnerships with other cultural societies and sponsorships from the Singapore Government for community-wide events
- Planned and executed a several-month long orientation program for newly-matriculated Singaporeans, ending off with a overnight guided trip to Chicago.

Air Warfare Officer — **Singapore Armed Forces**

📅 Apr 2018 – Apr 2020

- Trained as Air Traffic Control (ATC) Officer; in charge of recovering air assets in the event of national emergencies
- Led ATC operations briefs on a weekly and daily basis and managed communication between various bases during day-to-day operations
- Completed service on April 10th with the rank of Lieutenant

## PROJECTS

C++ Dependency Tracker — **Data Structures Final Project**

📅 Jan 2021 – May 2021

- Developed a tool that allows developers to visualize dependencies within their projects.
- Wrote a graph generator by running a depth-first search on a project source directory, creating edges based on file dependencies, which is then stored in an adjacency hash table.
- Delivered biweekly project reports, received a 99% score.

DSTA TIL 2020 — **Machine Learning + Robotics based Search and Rescue Competition**

📅 Jun 2020

- Trained a YOLOv4 based object detection model on the mnist data set to detect clothes
- Adapted model to a DJI Robomaster to autonomously identify and rescue targets based on clothes worn in a simulated disaster zone
- Finalist in University Category

Open Source Initiative — **ACS(I) Robotics Club**

📅 Nov 2016 – Apr 2017

Led an initiative to switch to open source robotics platforms for use in Competitions.

- Conducted workshops on how to read instruction set manuals for Arduino (AVR) and datasheets for sensors/electronics, with an emphasis on appreciation for open source culture
- Taught basic computer architecture concepts (ALUs, registers, IO) to junior members
- Setup and maintained communication channels between the software team, hardware team and part suppliers

## COURSEWORK

Algorithms and Models of Computation

Machine Learning (PyTorch)

Computer Vision

Computer Security

Computer Systems Engineering

Programming Languages

Data Structures (C++)

Probability and Statistics