

Aditya Kumar

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EDUCATION

Bachelor of Science, Computer Science with a minor in Statistics and Data Science, **Expected Graduation:** May 2024
University of Arizona, College of Science, Tucson, Arizona, **Cumulative GPA:** 3.974 out of 4.0
Highest Academic Distinction for the Academic Year [2020-21, 2021-22, 2022-2023]
Dean's List with Distinction [2022-2023]

CORE TECHNOLOGIES & SKILLS

Languages/Libraries: Java, Python, C++, C, MySQL, JavaScript, MATLAB, HTML/CSS, SASS, NodeJS, Express, MongoDB, R, NumPy, Pandas, Streamlit, Open3D, OpenCV

Technologies: AWS, Docker, REST APIs, jQuery, YAML, Git, Maven, IBM Watson, Unity

RELEVANT COURSE-WORK

Computer Science: Web Programming, Data Structures and Algorithms, Computer Organization, Software Development, Object Oriented Programming, Systems Programming and UNIX, Computer Security, Database Design, Computer Vision, Data Visualization, Text Retrieval

Mathematics: Calculus (I, II, and III), Discrete Mathematics, Linear Algebra, Statistics for Data Science

PROFESSIONAL EXPERIENCE

Undergraduate Researcher

Department of Computer Science, University of Arizona

October 2023 – Present

- Work with Dr. Christian Collberg on Tigress, a code obfuscator for C language that protects against static and dynamic reverse engineering.
- Contribute to the data analysis pipeline that processes data for tool validation.

Student Software Developer and Researcher

Pauli Lab, College of Plant Sciences, University of Arizona

April 2023 – Present

- Collaborate with world-class scientists to develop high throughput phenotyping pipelines to handle data recorded by the world's largest plant phenotyping robot and drones.
- Create a visualization dashboard using Streamlit and other Python libraries that visualizes lab data collected by the pipeline over the last 3 years using Plotly and Open3D.
- Write YAML files for distributed data processing, and process data on the High-Performance Computer (HPC).

Senior Undergraduate Teaching Assistant

Department of Computer Science, University of Arizona

August 2021 – Present

- Conduct weekly office hours and supplemental instruction sessions for courses like CSC 101 (Introduction to Programming), CSC 144 (Discrete Math for Computer Science), CSC 210 (Software Development), and CSC 352 (Systems Programming and UNIX).
- Partner with the professor for grading and preparing programming assignments and exams for a class of over 150 students. In addition to this, collaborate with them to develop innovative course content and improve course logistics.
- Actively mentor a team of 10 UGTAs to help them achieve their goals as a teaching assistant.

PROJECTS

Wordle 2.0 (*Demonstration video: <https://youtu.be/f2A4nmpqGxE>*)

- Collaborated with an AGILE team of 4 developers to create a multi-modal, multiplayer version of this game using Java's Swing Library.
- Created a global leaderboard using MongoDB Atlas which was incorporated into the project using Maven.
- Thoroughly tested the code by using the JUnit library to provide a bug-free and reliable user experience.

Quickfeed Feedback System (*Demonstration Video: <https://youtu.be/dQ8GYfQ5V4>*)

- Designed and developed the user interface using HTML, JavaScript, and CSS for a web application that provides real-time feedback to teachers.
- Built the client-side backend by using JavaScript and facilitated communication with the server by using AJAX.
- Collaborated in creating the server-side backend using Node.js and Express, and stored client-side data by creating a NoSQL Database with MongoDB.

Image Classifier from Scratch

- Created a K-Nearest Neighbors Image Classifier in C++ without using any ML Libraries.
- Designed an interactive UI using Qt, a C++ library for creating cross-platform GUIs.