ADITYA KUMAR

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GitHub ⋄ LinkedIn ⋄ Personal Website

EDUCATION

Master of Science, Computer Science, The University of Arizona   Expected: May 2025
Cumulative GPA: 4.0/4.0

Bachelor of Science, Computer Science, The University of Arizona   Aug 2020 - May 2024
Minor in Statistics and Data Science
Cumulative GPA: 3.98/4.0
Summa Cum Laude, 4x Highest Academic Distinction for the Academic Year, Global Wildcat Scholar

TECHNICAL SKILLS

Languages	Python, Java, C, SQL, MATLAB, HTML, CSS, JavaScript, R
Frameworks & Libraries	NumPy, Pandas, Streamlit, TensorFlow, PyTorch, Open3D, OpenCV, Lucene
Technologies	Docker, High Performance Computing, REST, YAML, Git, Maven, AWS, Unity

WORK EXPERIENCE

Graduate Research Assistant   May 2024 - Present
Department of Computer Science, University of Arizona   *Tucson, AZ*

- Collaborate with Dr. Joshua Levine to develop deep learning-based volume visualization techniques to enable compressive, interactive, and intuitive analysis.
- Work on finding alternatives to SIREN based neural networks for the purpose of compression.

Undergraduate Research Assistant   Oct 2023 - May 2024
Department of Computer Science, University of Arizona   *Tucson, AZ*

- Worked with Dr. Christian Collberg on Tigress, a code obfuscator for C language that protects against static and dynamic reverse engineering.
- Optimized and advanced a Python based data analysis pipeline for tool validation.

Student Software Developer and Researcher   Apr 2023 - May 2024
Pauli Lab, College of Plant Sciences, University of Arizona   *Tucson, AZ*

- Collaborated with leading scientists to develop high-throughput phenotyping pipelines for data recorded by the world's largest plant phenotyping robot and drones.
- Created an interactive visualization dashboard using Streamlit and Python libraries, visualizing 3 years of lab data with Plotly and Open3D.

Senior Undergraduate Teaching Assistant   Aug 2021 - May 2024
Department of Computer Science, University of Arizona   *Tucson, AZ*

- Conducted weekly office hours and supplemental instruction sessions for courses including CSC 101 (Introduction to Programming), CSC 144 (Discrete Math), CSC 210 (Software Development), and CSC 352 (Systems Programming and UNIX).
- Assisted in grading and preparing programming assignments and exams for over 150 students, ensuring a high standard of academic integrity and support.

PROJECTS

C-Code Deobfuscator and Decompiler: Implemented a CNN model to classify obfuscation techniques applied to binary code, trained on a large dataset of randomly generated C programs with various obfuscations. Utilized Claude Opus' advanced language processing capabilities to decompile obfuscated programs using their classification information.

Wordle 2.0: Collaborated with an AGILE team of 4 developers to create a multi-modal, multiplayer version of Wordle using Java's Swing Library. Developed an online leaderboard using MongoDB Atlas and Maven. Demonstration Video

Quickfeed Feedback System: Designed and developed the user interface for a web application providing real-time feedback to teachers using HTML, JavaScript, and CSS. Built the client-side backend with JavaScript, facilitating server communication via AJAX. Developed the server-side backend using Node.js and Express, with data stored using MongoDB. Demonstration Video

MISCELLANEOUS

- Presented a session on Data Visualization in the *Scientific Computing & Data Analytics: A Comprehensive Toolkit for Research* webinar conducted by AG2PI, attended by over 150 participants. Webinar webpage