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**Education**

<b>University of Virginia</b> , Charlottesville, VA <b>Computer Science (BACS)</b> <ul style="list-style-type: none"><li>GPA: 3.861/4.000</li><li>Relevant course work: CS 2100, CS 2120, CS 2130, CS 3100, CS 3120, CS 3130, CS 3140, CS 4710, MATH 3100, MATH 3250, MATH 3351, MATH 3354</li><li>Coursework in progress: MATH 3110, MATH 4110, MATH 4651, MATH 4652, STAT 3120</li></ul>	<b>August 2022 - Present</b>
<b>Thomas Jefferson High School for Science and Technology</b> , Alexandria, VA <b>High School Diploma</b> <ul style="list-style-type: none"><li>GPA: 4.40 / 4.00</li><li>Relevant Coursework: AP Computer Science, AP Calculus BC, Multivariable Calculus, Linear Algebra, Concrete Mathematics, Probability Theory, Artificial Intelligence, Machine Learning, Independent Research in Computer Science</li><li>Conducted independent research to improve neural network accuracy using pixel saliency heat maps</li></ul>	<b>August 2018 - May 2022</b>

**Work Experience**

<b>University of Virginia, Computer Science Department</b> , Charlottesville, Virginia Undergraduate Research Assistant <ul style="list-style-type: none"><li>Investigating the applications of in-context reinforcement learning to autonomous driving under Professor Rohan Chandra.</li></ul>	<b>April 2025 - Present</b>
<b>University of Virginia, Computer Science Department</b> , Charlottesville, Virginia Discrete Mathematics Teaching Assistant <ul style="list-style-type: none"><li>Graded coursework and hosted office hours to assist students with questions and project guidance.</li><li>Reviewed prototype presentations, offering constructive feedback to support students' design and usability improvements.</li></ul>	<b>August 2024 - Present</b>
<b>University of Virginia, Applied Mathematics Department</b> , Charlottesville, Virginia Calculus II Teaching Assistant <ul style="list-style-type: none"><li>Led discussion sessions and provided individualized student support to reinforce advanced calculus concepts.</li><li>Collaborated with faculty and students to enhance course materials, ensuring consistent and effective teaching methods.</li></ul>	<b>August 2024 - Present</b>
<b>Mathesis Technology LLC</b> , Charlottesville, Virginia Contractor <ul style="list-style-type: none"><li>Created tools for a start-up to enhance mathematical pedagogy targeted to university students under the guidance of Dr. Matthew McMillan. Received support from the College of Engineering in the University of Virginia.</li></ul>	<b>April 2024 - Present</b>
<b>Novateur Research Solutions</b> , Ashburn, Virginia Research Intern <ul style="list-style-type: none"><li>Optimized a Graph Neural Network to detect Money-Laundering under the mentorship of Dr. Zeeshan Rasheed. Gained experience with state of the art machine learning libraries, namely PyTorch Geometric.</li></ul>	<b>June 2024 - August 2024</b>
<b>Novateur Research Solutions</b> , Ashburn, Virginia Research Intern <ul style="list-style-type: none"><li>Created deep-learning models for automated analysis of Point-of-Care Ultrasound (POCUS) Imagery under the mentorship of Dr. Jonathan Amazon. Worked with state of the art computer vision models such as ResNet.</li><li>Researched large language models training specifically for the field of geology and mineralogy in August 2023</li></ul>	<b>June 2023 - August 2023</b>

**Activities**

<b>Optimizing Multiagent Search Algorithms</b> <ul style="list-style-type: none"><li>Currently researching search algorithms (primarily A*) and methods to optimize for multiagent settings, such as autonomous vehicles and video-game AIs.</li></ul>	<b>November 2024 - Present</b>
<b>Reinforcement Learning AI to Optimize Grid World Problems</b> <ul style="list-style-type: none"><li>Researched reinforcement learning methods and implemented a Q-Learning pacman agent to traverse challenging grid world problems.</li></ul>	<b>November 2024</b>
<b>Otsu Binarization</b> <ul style="list-style-type: none"><li>Researched the relationship between the Otsu Binarization algorithm and k-means. Applied Scikit-Learn for data analysis and implementation of Otsu Binarization and enhanced it for "noisier" images</li></ul>	<b>December 2023</b>
<b>Cubism GAN</b> <ul style="list-style-type: none"><li>Researched generative adversarial networks and coded an ML network in Python to change the style of images to any art style.</li></ul>	<b>September 2023</b>
<b>Pixel Saliency Heat Maps to Explain Black Box Models</b> <ul style="list-style-type: none"><li>Researched the reason behind a convolutional neural network's decision making and implemented heat maps to improve both the explainability and accuracy of a black box CNN</li></ul>	<b>June 2022</b>

**Skills**

- Technical: MATLAB experience, Microsoft Office Suite, LaTeX, SQLite, Hibernate
- Coding: C, C++, Python, Java, JavaScript, PyTorch, Scikit-Learn, TensorFlow, Keras, Pandas
- Languages: English (Native), Urdu/Hindi (Native), French (Proficient), Russian (Proficient), Italian (Proficient), Korean (Proficient), Japanese (Proficient), German (Proficient)