

JONATHAN BORGHESE

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44284 Lord Fairfax Place, Ashburn, VA 20147

Virginia Tech Computer Engineering Graduate with a focus in AI/Machine Learning

EDUCATION

Virginia Tech, Bachelor of Science in Computer Engineering, Summa Cum Laude Honors

Virginia Tech, Minor in Computer Science

Virginia Tech, Masters of Science in Machine Learning, Pending

SKILLS

AI: Machine Learning, Deep Learning, Computer Vision, Reinforcement Learning, LangChain

JavaScript: TypeScript, HTML, CSS, NodeJS, AngularJS, React, Angular

CS: C, C++, Java, Algorithms, Data Structures, MQTT, SQL, Git, MongoDB

Linux: VirtualBox, Kernel Programming

Python: Pandas, Scikit Learn, Tensorflow, OpenCV, Keras

JOB EXPERIENCE

Graduate Teaching Assistant

Virginia Tech Spring 2022

- Taught circuit fundamentals and C++ through a microcontroller

Virginia Tech Fall 2022

- Taught Digital Systems, a class about transistor logic and the relationship between hardware and software

Math & Programming Tutor

- Tutored Algebra I & II, Geometry, Calculus I for high school aged students

RELEVANT COURSEWORK

- **Machine Learning** – fundamentals ML techniques
 - Created handwriting recognition software from scratch that has a 93% success rate with the MNIST database
- **Reinforcement Learning** – Reinforcement learning concepts and applications
 - Created a stock trading AI from scratch in python using Q-Learning
- **Computer Vision** – Techniques for automated analysis of images and videos including image formation, feature detection, and segmentation were learned
 - Made motion detection software using the KLT algorithm in python
- **Data Structure & Algorithms** – Created data structures such as hash tables, B+ trees in both Java and C++
- **Cloud Software Design** – Studied front-end and back-end web design using NodeJS and AngularJS
 - Used NodeJS to implement a back-end server capable of login/logout/ functionality and chat messaging
- **Embedded Systems** - Programmed a microcontroller to do various tasks
- **Applied Software Design** - Created UI/UX applications using QT in C++

PERSONAL PROJECTS

- Personal Discord Bot with Python ([view](#))
- K nearest neighbor algorithm ([view](#))
- Tetris with ascii characters in cmd using C++
- Unreal Engine Voxel Generation
- Unity Platformer Game
- Valve Hammer Editor Projects