# Matthew Barnes

matt.barnes@richmond.edu | +1 (610) 882-2827 | https://www.linkedin.com/in/matthew-barnes99/

## Education

***University of Richmond,*** **VA** — May 2022

**Bachelor of Arts | Double Major in Computer Science and Leadership Studies | GPA: 4.0**
- Member of Phi Beta Kappa - Inducted junior year with other members in the top 1% of the class
- Robert E. Loving Book Award - Given to the junior with the highest GPA
- Jepson Summer Research Fellowship - $4000 awarded for research on the creation and mitigation of biased algorithms
- Robert L. Burrus Jr. Fellowship - $4000 awarded for an internship with Behavior Design Media

## Work Experience

***Speech and Writing Consultant,*** University of Richmond, VA — August 2019 - Present
- Refined the personal presentation skills and communication effectiveness of ~8 students per week through the integration of PowerPoint and other presentation technologies
- Strengthened students' writing and communications through collaborative planning, revising, and error analysis

***Behavior Design Media,*** Remote — May 2021 - July 2021
*Project Management Intern*
- Improved UX/UI by revising 3 core aspects of the app prototype through pattern analysis of user testing
- Identified the market niche for the app through SWOT analysis on other behavior based and well being apps

***Summer Research Fellowship - 'Biased Algorithms',*** University of Richmond, VA — June 2020 - August 2020
*Independent Research, Advisor Dr. Kristin Bezio*
- Investigated the creation of biased algorithms, and how they affect vulnerable populations
- Examined the introduction of bias using a hands on approach to algorithms
- Wrote and presented a meta analysis at the Jepson Symposium about measuring fairness in computing

***United Way Worldwide,*** Alexandria, VA
*Intern: Digital Services* — May 2019 - July 2019
- Leveraged the social media impact of 75 local United Ways by improving their outreach programs
- Saved 25 hours of work per month by automating statistical calculation for local United Way impact reports

## Projects

### App - 'Gymify'
*Honors Thesis, Advisor Dr. Kristin Bezio*
- Experimentally found effective motivation techniques for habit formation through the design and development of an IOS app
- Analyzed ethical, social implications of applying motivation design patterns to digital channels
- Attracted 50 participants for ABA testing with 4 randomized treatments and a control group over a 6-week period

### Get My Music (C)
- Led a team of 4 to create a central server and client side interface to share music using TCP connections
- Implemented client upload and download to and from the server, robustly checking for duplicates without file transfer

### Bike Purchase Classifier (Python)
- Created a scikit learn machine learning model using a random forest classification model to simulate potential bike-buying behavior
- Tuned model using k-fold cross-validation and achieved a 76% accuracy on the validation set
- Created a neural network regression model with k-fold cross-validation to determine average monthly spending of new customers

### Traffic Simulation (C++)
- Directed a team of 4 to create a simulated intersection traffic with a time-step clock and achieved 100% collision avoidance
- Implemented simulation flexibility through parameter variation, such as type of vehicles and turn probability

## Skills

**Programming Languages:** C/C++, Java, Python, HTML, CSS, Javascript, MIPS
**Skills:** GitHub, Valgrind, GDB, OOP, Assembly, LaTeX, Jupyter Notebook, Notion, Airtable, Balsamiq, Figma, Unit testing
**Relevant Coursework:** Data Structures, Algorithms, Networks, Design and Implementation of Programming Languages, Software Systems