André N. Shannon

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EDUCATION

University of Richmond, School of Arts and Sciences, Richmond, VA *May 2022*
Bachelor of Science in Mathematics and Computer Science, summa cum laude
GPA: 3.89/4, *Departmental Honors in Computer Science*

Relevant Classes: Machine Learning, Advanced Linear Algebra, Data Structures, Software Systems Development, Algorithms, Computer Security, Programming Languages, Android Programming

EXPERIENCE

University of Richmond Computer Science Department, Richmond, VA *Fall 2021-Spring 2022*
Independent Researcher, supervised by Dr. Douglas Szajda
- Developed provably robust deep learning explanation methods for image classifiers using Python
- Reviewed literature and collaborated with Univ. of Florida colleagues to edit prototype code
- Presented findings in honors thesis and gave oral presentation to university community

University of Richmond Computer Science Department, Richmond, VA *Summer 2021*
Research Assistant, supervised by Dr. Douglas Szajda
- Applied explanation methods to deep learning voice processing systems using Python
- Explored current explanation models and adversarial attacks and defenses with 7-student team
- Presented findings with research team in oral and poster presentations to university community

University of Richmond Academic Skills Center, Richmond, VA *Fall 2021-Spring 2022*
Academic Tutor
- Individually tutored 20+ students in Data Structures, Computer Organization, Algorithms, Discrete Structures, Software Systems Development, and Introduction to Computing
- Held weekly drop-in hours for undergraduate computer science students

University of Richmond Computer Science Department, Richmond, VA *Summer 2020*
Research Assistant, *supervised by Dr. Jory Denny and Dr. Jeremy LeCrone*
- Explored motion planning for car-like robot models with an emphasis on safety using Python
- Worked with research team to define and sample medial axis structures in state space
- Collectively updated and expanded large-scale existing C++ motion planning code base

University of Richmond Mathematics Department, Richmond, VA *Summer 2019*
Research Assistant, supervised by Dr. William Ross
- Transmitted, compressed, and denoised images using Parseval Frames, Fourier Discrete Cosine Transform, and wavelets, all in Mathematica
- Presented findings with research team via oral and poster presentations to university community

LEADERSHIP

Virginia Commonwealth Univ. Recreation and Wellness, Richmond, VA *Spring 2021-Spring 2022*
Team-Building Facilitator, Outdoor Adventure Program
- Conducted variety of portable, low, and high challenge and ropes course activities
- Facilitated group icebreakers and team-building initiatives
- Performed regular safety inspections of the high ropes challenge course

University of Richmond Recreation and Wellness Dept., Richmond, VA *Spring 2020-Spring 2022*
Trip Leader, Outdoor Adventure and Recreation Program
- Organized and led biking, hiking, camping, and kayaking trips for groups of 8+ students
- Trained in CPR and first aid to ensure safety and wellbeing of participants
- Educated participants on proper outdoor safety and recreation protocol

University of Richmond Quidditch Team, Richmond, VA *Spring 2020-Spring 2022*
Captain (2021-2022), Safety Officer (2020-2022), Money Manager (2021-2022)
- Planned, organized, and led practices, tournaments, and social events
- Trained in CPR, first aid, and emergency response protocol to ensure safety of participants
- Managed yearly club funds of $1,000+ and all team equipment

PUBLICATIONS / PRESENTATIONS / PERSONAL PROJECTS

Shannon, André, "Developing Provably Robust Explanation Methods for Image Classifiers" (2022). Honors Theses. 1656. https://scholarship.richmond.edu/honors-theses/1656 *April 2022*

Shannon, André, Nikita Morozov, Angela Stefanovska, Christ Athiogbey, Vi Pham, Grant Szajda, Oheneba Berko, "Explaining Automated Voice Processing Systems." Poster Presentation at 2022 Arts and Sciences Student Symposium, Richmond, VA, April 22, 2022. *April 2022*

Kudlay, Vadim, **André Shannon**, "Defining Safety For Self-Driving Cars: Planning on the Medial Axis for Non-Holonomic Systems." Virtual Presentation at Fall Research Colloquium, September 9, 2020. *September 2020*

Shannon, André, Nathan Lyell, Maggie Dong, Steven Zhang, and Bill Shen, "Transmitting, Compressing, and Denoising Images." Oral Presentation at Fall Research Colloquium, Richmond, VA, September 2, 2019. *September 2019*

Discord Bot *Fall 2021*
- Integrated OpenAI's GPT-3 NLP model into a Discord chat bot
- Built with PRAW Reddit API and hosted on AWS EC2

MNIST Image Classifier *Summer 2021*
- Created a Python ML classifier to classify digits from MNIST dataset
- Built from scratch and Numpy external library

AWARDS / FELLOWSHIPS / HONORS / ACADEMIC SOCIETIES

Mary Church Kent and Joseph F. Kent Computer Science Award *Fall 2021-Spring 2022*
James D. Crump Prize: mathematics departmental award *Fall 2021-Spring 2022*
Phi Beta Kappa: international academic honor society *Spring 2022-Present*
16th place ICPC 2021 Mid-Atlantic USA Regional Contest *Fall 2021*
VS Lawrence scholarship: mathematics departmental scholarship *Fall 2020-Spring 2021*
Outstanding Student in Mathematics: mathematics departmental award *Fall 2020-Spring 2021*
Presidential Scholar: one-third tuition academic merit scholarship *Fall 2018-Spring 2022*
UR Summer Research Fellowship: fully funded research projects *Summer 2019, Summer 2021*

SKILLS & INTERESTS

Programming Languages: advanced: C++, Python, Java; basic: JavaScript, CSS, SQLite, HTML, MIPS
Other Computer Skills: Mathematica, LaTeX, Git
Extracurricular: Quadball Club, Men's Ultimate Club, Outdoors Club, Intramural Soccer, Piano
Language: Conversational Spanish