

JALYNN B. NICOLY, PH.D. STUDENT

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PROFESSIONAL SUMMARY

I am a driven first-year Ph.D. student in Computer Science at the University of Colorado Boulder, specializing in human-computer interaction, virtual reality, and brain-computer interface research, with four years of hands-on experience. I have contributed to cutting-edge projects, including developing virtual environments to improve healthcare workflows and cognitive workload studies using functional near-infrared spectroscopy and electroencephalography. With a robust track record of research excellence, including first-author publications and conference presentations, I have combined technical expertise in programming and immersive head-mounted displays with a passion for improving user experiences and creating smooth interactions. I am committed to advancing the work of human interaction with immersive environments, using my skills in Unity, MATLAB, and various head-mounted displays. Through research and teaching roles, I have demonstrated leadership and commitment to collaboration in an academic and professional setting.

EDUCATION

Doctor of Philosophy – Computer Science

Aug 2024 – May 2029

University of Colorado Boulder, Boulder, CO.

Advisor: Leanne Hirshfield

Bachelor of Science – Computer Science

Aug 2020 – May 2024

Colorado State University, Fort Collins, CO.

GPA: 3.65

PUBLICATIONS

Journal Articles

- [1] Rachel Masters et al. “The Impact of Nature Realism on the Restorative Quality of Virtual Reality Forest Bathing”. In: *ACM Trans. Appl. Percept.* (June 2024). Just Accepted. ISSN: 1544-3558. DOI: [10.1145/3670406](https://doi.org/10.1145/3670406). URL: <https://doi.org/10.1145/3670406>.

Conference Proceedings

- [2] Jalynn Blu Nicoloy et al. “The Restorative Influence of Virtual Reality Environment Design”. In: *ACM Symposium on Applied Perception 2024*. SAP '24. Dublin, Ireland: Association for Computing Machinery, 2024. ISBN: 9798400710612. DOI: [10.1145/3675231.3675244](https://doi.org/10.1145/3675231.3675244). URL: <https://doi.org/10.1145/3675231.3675244>.

CERTIFICATIONS

Group 2.SOCIAL / HUMANISTIC / BEHAVIORAL RESEARCH

Jan 2021 – Nov 2026

- Earned my CITI certificate during my second semester as a freshman undergraduate while working in the Memory and Metacognitive Lab.
- Renewed my certification as I continued conducting human participant research and publishing papers.

RESEARCH EXPERIENCE

University of Colorado Boulder Research Assistant

May 2024 – Present

System-Human Interaction with NIRS and EEG Lab (SHINELab)

Advisor: Leanne Hirshfield, Ph.D.

- Joined the SHINELab in the final year of my undergraduate studies, contributing to a NAVY-funded project in collaboration with Colorado State University, the University of Northern Colorado, and the University of Colorado Boulder.
- Conducted an extensive literature review on cognitive workload, functional near-infrared spectroscopy (fNIRS), electroencephalography (EEG), and adaptive versus fixed training methods.
- Modified an existing virtual reality environment in Unity to be compatible with fNIRS and EEG devices, enabling the logging of timestamps based on user action using Lab Streaming Layers.
- Encouraged by the lab, I decided to pursue my Ph.D. under Leanne Hirshfield, where I will continue contributing to this project, progressing into the machine learning (ML) phase.

Colorado State University Research Assistant

May 2022 – May 2024

Natural User Interaction Lab (NUILab)

Advisor: Francisco Ortega, Ph.D.

- Introduced to the NUILab as a sophomore psychology major by my lead teaching assistant, who was impressed by the recitation sessions I held for the introduction to coding in Java course.
- Began working as a research assistant in the summer, alongside a summer teaching assistant position, focusing on the second phase of the forest bathing project observing realism, where I am now the second author.
- Led the third phase of the forest bathing project, developing a virtual environment and analyzing differences in movement and beauty. This work resulted in my first first-author publication.
- Collaborated with NUILab members and graduate students on various projects, including the interaction cues, the virtual reality hackathon, and demos for middle school students, professors, and industry leaders.

Distributed Research Education for Undergraduates Research Assistant

May 2023 – Dec 2023

Artificial Intelligence & Robotics Lab (AIRLab)

Advisor: Angelique Taylor, Ph.D.

- Secured an opportunity through the Distributed Research Education for Undergraduates program to work with the AIRLab at Cornell Tech under Dr. Angelique Taylor, living in New York City (NYC) for ten weeks.
- Developed an augmented reality application using Unity, enabling hands-free interaction through speech and gaze, designed to assist healthcare workers in emergency rooms by enhancing team collaboration and workflow.
- Demonstrated the augmented reality application during Cornell Weill's Medical Center Base Camp, integrating the HoloLens 2 device into resuscitation training scenarios, later presented as a poster at Tapia 2024.

Colorado State University Research Assistant

Jan 2021 – Dec 2021

Memory and Metacognitive Lab

Advisor: Matthew Rhodes, Ph.D.

- Eager to get started as an undergraduate freshman, I met with Matthew Rhodes during a virtual "Meet Your Professors" session, where we shared our interests, leading to an extended conversation and my joining of the lab.

- Completed my first semester, acquiring a college GPA, I became Collaborative Institutional Training Initiative (CITI) certified to work with human participants. I began conducting literature reviews to familiarize myself with research methodology.
- Participated in weekly meetings, presenting my findings and learning from graduate students about their research and experiences, which would later influence my academic path.
- Qualified by the fall semester to start running experiments independently, administering consent forms, and guiding participants through a math-based study focused on the judgment of learning, followed by a survey a week later.

RELEVANT EXPERIENCE

Computer Science Teaching Assistant

Aug 2024 – Present

University of Colorado Boulder Computer Science Department

- Interested in building a stronger community at the University of Colorado Boulder, I applied for a teaching assistant position, working five hours a week in addition to my twenty-hour role as a research assistant.
- Connected with Mirela Alistar through a form submission, who found that my interests in human-computer interaction aligned with her course: CSCI 3002, the Fundamentals of Human-Computer Interaction.
- Responsible for administrative tasks, such as updating the syllabus and sending out announcements to students via Piazza and Canvas.
- Trusted with providing feedback on students' weekly recitation assignments to aid their self-grading.

Computer Science Lead Teaching Assistant

Jan 2022 – May 2023

Colorado State University Computer Science Department

- Inspired by my Introduction to Coding in Java course, I was encouraged by my instructor, Marcia Moraes, to switch my major from psychology to computer science and become a teaching assistant for her course.
- As a teaching assistant, I led group recitation sessions, providing introductory concepts before offering one-on-one support to students needing help building and debugging their code.
- Became proficient with Visual Studio Code, IntelliJ, and ZyBooks, where I assisted with editing exams and managing student submissions.
- After four consecutive semesters as a teaching assistant, I was promoted to lead, responsible for scheduling other assistants and serving as the primary contact for the teaching assistants, the professor, and the students.

Cybersecurity Teaching Assistant

Oct 2022 – Dec 2022

Massachusetts Institute of Technology (MIT) Lincoln Laboratory Beaver Works Center

- Recommended by a Colorado State University Computer Science Department peer to interview and later assist in teaching cybersecurity topics to high school students at MIT's Lincoln Laboratory Beaver Works.
- Assigned to mentor two groups of high school students, tracking their collaboration and providing hints to guide their progress in ongoing activities.
- Offered support on cybersecurity challenges involving TryHackMe, Bandit Over the Wire, and Linux commands.
- Dedicated six hours every Saturday during the school year for six hours to working with students and other teaching assistants via Zoom.

CONFERENCES

Tapia 2024 Conference

Sep 2024

- Selected to present a **poster** titled: "Virtual Timers for Improved Task Management and Collaboration during Resuscitation Procedures."
- Engaged with numerous companies, gathering contact information, and starting to plan for summer internships.

Association for Computing Machinery Symposium of Applied Perceptions

Aug 2024

- Delivered a **twenty-minute talk** with a PowerPoint presentation on my first-author paper titled "The restorative influence of virtual reality environment design."
- Traveled to Dublin, Ireland, to present my work and attend similar presentations on applied perception in virtual environments.

Institute of Electrical and Electronics Engineers Virtual Reality Workshop

Mar 2024

- Presented a **poster** titled: "The Restorative Influence of Virtual Reality Environment Design."
- Networked with fellow organizers and presenters, many of whom I would encounter again at future conferences.

Consumer Electronic Show

Jan 2024

- Secured a position with a local company, Invykta, which enabled me to attend the Consumer Electronic Show (CES) in Las Vegas as a company representative.
- Attended CES for multiple days, exploring cutting-edge technology such the Varjo XR-4 head-mounted display.

Grace Hopper Conference

Sep 2023

- Selected as one of a few female computer scientists to attend the Grace Hopper Conference in Orlando, FL.
- Attended several presentations on inclusion in the tech field, networked with multiple companies, and formed a community of female scientists from Colorado State University.

Stars Computing Corps

Sep 2023

- Presented a **poster** titled: "Improving Collaboration and Task Management during Resuscitation Cases by Introducing Augmented Reality."
- Shared findings based on my preliminary work with Cornell Tech during a base camp event, collecting data and feedback from healthcare workers.

Tapia 2023 Conference

Sep 2023

- Attended Tapia 2023, co-located with the Stars Computing Corps conference in Dallas, TX.
- Reconnected with AIRLab members, including previous students and Angelique Taylor, while networking with other companies.

Multicultural Undergraduate Research Art and Leadership Symposium

Mar 2023

- Presented my first **poster** on my research titled: "Restorative Effects of Virtual Reality Environments."
- Gained experience presenting research and expanding on phase two of the forest bathing project.

Rocky Mountain Celebration of Women in Computing Conference

Sep 2022

- Chosen as one of 50 Colorado State University's Computer Science Department students to travel to Boulder, CO., to attend the Rocky Mountain Celebration of Women in Computing.
- Explored research posters from local women in computing and attended talks on the importance of inclusion and diversity in tech.

Tapia 2022 Conference

Sep 2022

- Selected to receive a scholarship to attend my first conference, Tapia 2022, in Washinton, DC.
- Engaged with companies and shared my resume with recruiters.

DEMOS

Training Command Learning Symposium

Aug 2023

- Demonstrated notifications in an augmented kitchen environment at the Quantico, VA. NAVY Base, as part of the Natural User Interaction Lab.
- Participated in various demos, including head-mounted displays and training improvement projects.

Collaborations in Mental Wellness Symposium

Aug 2022

- Demonstrated the forest nature environment I developed for phase two of the restorativeness project.
- Further details available here: <https://newsmediarelations.colostate.edu/2022/08/01/csu-adds-mental-wellness-session-to-kick-off-darpa-forward-conference/>.

SCHOLARSHIPS

Dean's and Departmental Excellence Fellowship

Aug 2024

- Received a \$5,000 one-time fellowship as part of my acceptance to the University of Colorado Boulder.

Harmonious Software Scholarship

Aug 2023

- Awarded the Harmonious Software Scholarship from the College of Natural Sciences for the 2023-2024 academic year.

Students First Scholarship

Aug 2022

- Selected as an outstanding student based on leadership, campus engagement, and contributing to diverse perspectives.

AWARDS

ACM Student Research Competition Undergraduate Second Place

September 2024

- Won second place following my poster and ten-minute presentation on my Distributed Research Experience for Undergraduate work with Cornell Tech titled "Virtual Timers for Improved Collaboration during Resuscitation Procedures."

National Center for Women & Information Technology Aspirations in Computing Collegiate Award Finalist

May 2023

- Named a finalist of the NCWIT Collegiate Award in recognition of outstanding computing accomplishments by undergraduate women and their technical projects with high-level creativity and potential impact.
- Additional information can be found here: <https://www.aspirations.org/news/2023-collegiate-award-recipients>.

EXTRA-CURRICULAR ACTIVITIES

Association of Computing Machinery for Women Club President

Jan 2022 – May 2024

- Started as a member, later becoming secretary by networking with other women in the computer science field through weekly events.
- Transitioned to the president, where I took responsibility for organizing events and fostering a supportive community.

Virtual Reality Hackathon Second Place

Oct 2022

- Joined a weekend-long event with NUILab members as we took on the mission of building a collaborative virtual environment.

- Enlisted to create a virtual environment that created a restorative effect for users, each member built a separate environment that could be selected as a restorative option based on users' preference.
- Achieved second place after three reviews and demos by interviewers.

SKILL

Coding

Java, Python, R, MATLAB, JavaScript, HTML, LaTeX, C#, C++, & Assembly.

Head-Mounted Displays

Vive Pro 2, Oculus Quest 2, Oculus Quest Pro, & HoloLens 2.

Developer Software

Unity Engine, Unreal Engine 4/5, Blender, GitHub, Overleaf, Visual Studio Code, IntelliJ IDE, Jupyter Notebook, & OpenGL.

Brain-Computer Interface Software

Aurora, BrainVision, Lab Recorder, Lab Streaming Layer, MATLAB, NIRS Toolbox, EEGLab, & BrainVision Analyzer.

Miscellaneous

Debugging, Research Methodology, (PRISMA) Literature Review, Publishing, Academic Research, One-on-one Teaching.