Nyle Siddiqui

nylesiddiqui1@gmail.com | 612-206-0979
Linkedin | Github | Google Scholar

Summary

- Currently pursuing a Ph.D. in Computer Science (Computer Vision) advised by Dr. Mubarak Shah
- B.Sc. Double Major in Computer Science and Applied Mathematics + Statistics
- Experienced in research, grant/IRB writing, tutoring, and instructing
- Former machine/deep learning workshop instructor for undergraduates
- Author/co-author of 4 accepted internal research grants at UWEC
- Former National Science Foundation Summer Research Experience for Undergraduates (NSF-REU) recipient

Education

University of Central Florida — *Expected Graduation: May 2027*

Ph.D student in Computer Science at the Center for Research in Computer Vision (CRCV)

University of Wisconsin - Eau Claire — *Graduated: May 2022*

B.Sc in Computer Science and Applied Mathematics with Statistics Emphasis (Double Major)

- GPA: 3.76/4.00
- Graduated Magna Cum Laude with both University and Departmental (Computer Science) Honors

Research Experience

CRCV PhD Student — *September 2022 - Current*

- Currently in my 2nd year of conducting research supervised by Dr. Mubarak Shah. My main research topics include:
  - Generative Video Diffusion Models
  - Disentangled Representation Learning
  - Person + Action Recognition in Videos
- First authored a paper in my first year, accepted at AAAI 2024.
- Second paper under review at CVPR 2024.

AIMS Senior Researcher — *September 2020 - May 2022*

- Conducted research alongside Dr. Rushit Dave in the Artificial Intelligence and Machine Learning for Security (AIMS) Research Lab at UWEC
- Research topics included
  - Machine/Deep Learning for User Authentication
  - Smart Cities, Data Security in Autonomous Vehicles
  - IoT Devices
- Senior researcher responsibilities included
  - Led and mentored other undergraduate researchers in AIMS
  - Edited papers before publication
  - Instructed various machine learning-related campus workshops hosted by AIMS

NSF-REU Participant - University of Minnesota — *June 2020 - September 2020*

- Conducted research in the Interactive Robotics and Vision Lab at the University of Minnesota under the supervision of Dr. Junaed Sattar
- Researched deep learning methods to calculate and mitigate risk in autonomous underwater robotic vision environments. This research experience was funded by the National Science Foundation for 3 months in the summer

Selected Papers

[1] DVANet: Disentangling View and Action Features for Multi-View Action Recognition

Siddiqui N., Tirupattur P., Shah M. (2023). Proceedings of the AAAI Conference on Artificial Intelligence, 38(1). Link

[2] Leveraging Diffusion and Large Language Models for Clothes-Changing Re-ID

Siddiqui N., Croitoru A., Nayak G., Ionescu R., Shah M. Under review, 2024 Computer Vision and Pattern Recognition Conference (CVPR 2024)

[3] ML and DL Applications to Mouse Dynamics for Continuous User Authentication

Siddiqui N., Dave R., Vanamala M., Seliya N. (2022). Machine and Deep Learning Applications to Mouse Dynamics for Continuous User Authentication. Machine Learning and Knowledge Extraction, 4(2), 502-518. Link

Personal Projects

Neural Network from Scratch — *June 2020 - August 2020*

Created a feed-forward neural network from scratch (no external machine learning libraries) that self-learns how to correctly identify handwritten digits from the MNIST database. Designed with multiple optimizers and activation functions, weight regularization, learning rate decay, and more. Can be found in my GitHub.

Teaching Experience

NSF REU Mentor — *June 2023 - August 2023*

• The CRCV is home to the longest running NSF-funded REU in the nation. As a PhD student, I was a mentor to one of the 10 undergraduates selected for our Summer 2023 program

Undergrad Research Mentor — *September 2021 - May 2022*

• Helped introduce and mentor new students joining AIMS who are interested in starting research
• Personally mentored two undergraduate researchers as they expanded on my previous research project, which lead to a publication: "Continuous User Authentication Using Machine Learning and Multi-Finger Mobile Touch Dynamics with a Novel Dataset"

AIMS Workshop Instructor — *May 2021 - November 2021*

• Co-instruct and co-create original material for 2-day instructional deep/machine learning-based workshops
• Past workshop titles include

- Python and An Introduction to Machine Learning
- An Exploration of Game Theory and Deep Reinforcement Learning

• These free workshops were hosted by the AIMS research lab with participants consisting of high school students, UWEC undergraduates, and adults from the surrounding Eau Claire community
• Created with the intent of contributing to the community as well as providing all students from UWEC and surrounding high schools a quality and supportive introduction into increasingly attractive computer science topics

UWEC Math Tutor — *November 2018 - May 2022*

Tutored undergraduate students in college-level courses, including
• College Geometry and College Algebra
• Pre-Calculus and Calculus I-III
• Statistics, Trigonometry, Linear Algebra and Probability Theory

Grants/Awards

Co-Authored Grants

• Computer Science Student/Faculty Research Collaboration Grant ($2,800) — *Fall 2021*
• UWEC Summer Research Grant ($3000) — *Summer 2021*
• Computer Science Student/Faculty Research Collaboration Grant ($2,000) — *Spring 2020*
• Computer Science Student/Faculty Research Collaboration Grant ($2,000) — *Fall 2020*

Recipient

•UCF ORCGS Doctoral Fellowship ($25,000) — *Fall 2022-27*

- Awarded to the top incoming doctoral students at the University of Central Florida. Provides guaranteed GRA funding throughout the entire PhD. Awarded by Dr. Mubarak Shah

• UWEC Diversity Mentoring Grant ($2000) — *Fall 2021*

- Awarded for excellent undergraduate research conducted by a student from a marginalized community.

• National Science Foundation Research Experience for Undergraduates Grant ($9,500) — *Summer 2021*

- Awarded by the NSF to conduct research at the University of Minnesota

UWEC Scholarships

• Shyam Chadha Mathematics Scholarship ($1,000) — *Fall 2021*
• Phillip S. Zivnuska Mathematics Scholarship ($1,000) — *Spring 2020*
• UWEC Freshman Honors Scholarship ($1,000) — *Fall 2018*