

Adrian K. Jackson

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Aspiring PhD student dedicated to solving challenging and relevant problems within advanced manufacturing from a controls and machine learning perspective. With experience in both academic and industry settings, I bring a strong ability to outline and understand complex problems, develop rigorous solutions, and collaborate effectively within diverse teams.

I am also committed to outreach and education, having led multiple student organizations and events dedicated to promoting research and academic knowledge across all age groups.

Education

BS in Electrical Engineering

Rutgers University, New Brunswick

Sept 2022 - December 2025 (Anticipated)

GPA: 3.78

Research Experience

Undergraduate Research Assistant

October 2022 - Present

Advanced Manufacturing Sciences Lab, Rutgers University

- Created a real-time error quantifier for voids and overprinting defects found in Fused Filament Deposition (FFF) processes
- Assisted in the creation of a real-time control system which corrected over- and under-printing defects in FFF with over 95% accuracy. ***Was awarded the Goldwater Scholarship for this work.***
- Assisted in the design and construction of the electrical systems and LabVIEW firmware of a multiplexed FFF 3D printer (capable of producing parts at up to 10x the speed of a traditional printer with no resolution loss) and Wire Arc Additive Manufacturing Welder (a testbed for creating defect correction control schemes for metal additive processes)
- Developed a symbolic regression algorithm to express physical properties of 3D printed parts in terms of its inputs with an analytical expression with under 5% nominal error.

Academic Year Research Intern

August 2024 – May 2025

New Jersey Space Grant Consortium

- Created a control system to detect and prevent 3D printing stringing defects in real-time leveraging Computer Vision and Reinforcement Learning

Summer Research Intern

May 2024 – August 2024

New Jersey Space Grant Consortium

- Collaborated with NASA's Space Technology Mission Directorate to develop *in-situ* hot rolling compression of FFF 3D printed parts to enhance mechanical strength and reduce defects of parts.
- Developed a machine learning model to predict changes in geometry due to the hot rolling process.

Research Assistant

July 2021 - August 2021

Kean University

- Assisted Dr. David Joiner at Kean University in creating a convolutional neural network to detect and identify pollen presence and types in conjunction with the Pollen Underground initiative.

Publications

- Cleeman, J., **Jackson, A.**, Esola, S., Shao, C., Xu, H., & Malhotra, R. (2025). Scalable control of extraneously induced defects in in-field additive manufacturing. *Journal of Manufacturing Processes*, 141, 919-933. <https://doi.org/10.1016/j.jmapro.2025.03.014>
- Malhotra, R., Cleeman, J., **Jackson, A.**, Esola, S., & Shao, C. (2024). Throughput scaling and thermomechanical behaviour in multiplexed fused filament fabrication. *CIRP Annals*, 73(1), 177-180. <https://doi.org/10.1016/j.cirp.2024.04.024>
- Eslaminia, A., **Jackson, A.**, Tian, B., Stern, A., Gordon, H., Malhotra, R., Nahrstedt, K., & Shao, C. (2024). FDM-Bench: A comprehensive benchmark for evaluating large language models in additive manufacturing tasks. *arXiv Preprint*, arXiv:2412.09819.
- Mangrolia, B., Cleeman, J., Patel, A., **Jackson, A.**, & Malhotra, R. (2024). Real-time recovery from cyberattacks on manufacturing processes. *Proceedings of the 2024 International Symposium on Flexible Automation*, 21–24 July 2024, Seattle, WA. ASME. <https://doi.org/10.1115/ISFA2024-139964>
- Cleeman, J., **Jackson, A.**, Patel, A., & Malhotra, R. (2024). Toolpath synthesis and mechanical properties in multiplexed fused filament fabrication. *Proceedings of the ASME 2024 19th International Manufacturing Science*

Professional Experience

Manufacturing R&D Intern

June 2025 – August 2025

Colgate-Palmolive

- Creating a manufacturing testbed with AVEVA WonderWare ArchestrA, InTouch, InBatch, Windows Server 2019, and PLCs and testing the effect of various cybersecurity policies on system functionality

Software Intern

August 2021 – September 2021

Anova LLC

- Scripted in Python to enable low-cost communication via RS 485 to industrial PLCs with Modbus.

Academic Involvement and Leadership

Inductee, *Rutgers Cap & Skull Honor Society*

May 2025 – Present

- Selected as one of 18 students from over 30,000 for Cap & Skull, Rutgers' premier senior honor society recognizing leadership, character, and excellence in academics, athletics, and the arts.

Treasurer, *IEEE Eta Kappa Nu (HKN)*

May 2024 – Present

- Managing club finances and reimbursements, worked with Rutgers SABO, and helped coordinate events.

Senior Member, *Rutgers IEEE ML/AI Club*

September 2023 – Present

- Creating various ML projects, entering in Kaggle competitions, and mentoring underclassmen.

Review Program Director, *Aresty Rutgers Undergraduate Research Journal (RURJ)*

September 2022 - Present

- Editing papers submitted to RURJ by undergraduates, taught a class educating other students on peer editing.

Honors, Awards, and Grants

- Goldwater Scholar 2025
- Purdue University GradTrack Mentee 2025 Cohort
- Aresty Fellow 2025
- Kappa Sigma SLA Scholarship Award 2025
- Rutgers School of Engineering Scholarship 2024
- New Jersey Space Grant Consortium Summer Research Grant 2024
- IEEE HKN Key Chapter Award 2024
- New Jersey Space Grant Consortium Academic Year Research Grant 2024-2025
- Aresty Research Assistant 2023-2024

Campus Involvement

Alumni Chair

June 2023 – May 2025

Kappa Sigma Fraternity

- Contacted and coordinated with alumni to fundraise and coordinate fraternal events
- Drafted and edited alumni newsletter

Certifications

UIPath Robotic Process Automation Developer Foundation

December 2022

Relevant Skills

Machine Learning, Electronics, Python, Reinforcement Learning, Additive Manufacturing, Automation, Computer Vision, CAD, Leadership, Agile Thinking, Research