AUSTIN A. ZICKUR

56 1/2 E Green St, Champaign, IL **Email: azickur2@illinois.edu** **Phone: 815-570-7829**

Personal Statement

Consistent learning and effective communication are top priorities as I aim to build strong relationships, both professionally and personally. As a first-generation scholar, I find value in my ability to apply technical skills to hands-on work, especially in a team environment where communication and planning are vital. My passion for control systems and automation has driven me to explore their applications in the field of astrophysics, which continues to push me in my pursuit of excellence and fulfillment.

Technical Experience

Minorities in Aerospace (MAERO) - *Projects Ascension, Flight, and Hummingbird* **Aug. 2023 - May 2024**
University of Illinois Urbana-Champaign

- Ascension: rocket and propulsion design, assembly, launch, and landing for 3300ft mission
- Flight: wing design and assisted control engineering of battery powered, 3'x5' propeller plane
- Hummingbird: 3D CAD quadcopter chassis design with payload and control system engineering
- Synthesized code and simulations for a hands-on experience outreach program
- Co-designed constraints for hardware and software in all projects
- Assisted in the professional development and sponsorship from Blue Origin

QSaP 2023 Workshop - *Quantum Science at Purdue* **Oct. 2023**
Purdue University, West Lafayette, Indiana

- Involved myself with research in Quantum Information, Dynamics, Optics, Materials, Open Systems, and more.
- Increased scope in instrumentation and computing by attending industry and research informational sessions
- Insider experience in quantum cooling and particle control with light and high powered lasers
- Interacted with Qiskit and quantum games

Projects - *Experience in Controls, Physics, Simulation, Structures, and Fluids* **Aug. 2020 - Aug 2023**
University of Illinois Urbana-Champaign

- Linearized Gimbal, Rotor, Base dynamical equations and coded state feedback for angle control
- Coded an LQR controller for a single-axled robot simulation and verified requirements for time, error, and torque
- Designed an Observer/Feedback optimal controller for quadcopter simulated hoop target tracking
- Simulated N-body gravitational problem utilizing a simple iterative method in a Newtonian mechanical frame
- Replicated the Mercury I, Mercury II, and Apollo 8 missions in Kerbal Space Program with parameters and successful status
- Tested uniaxial stress and strain of Aluminum and Steel and predicted the yield, onset necking, and failure points
- Reported a cost-effective pitot-rake for parachute performance design and assessment with an engineering team
- Examined UAV wing design and ground effects on airfoil software with an engineering team
- Drafted parts in NX with geometric dimensioning and finalized engineering drawings
- Modelled Convair Model 200 conception VTOL in NX with cockpit moving part
- Conditioned and calculated Mars parachute landing test with aerodynamic evaluation

Leadership Experience

Minorities in Aerospace (MAERO) - *Membership Director, Organization Leadership Position* **Aug. 2022 - Dec. 2024**
University of Illinois Urbana-Champaign

- Increased outreach, organization, and efficiency in a fast and growing, newly Registered Student Organization
- Assisted with most critical roles shortly after conception and well throughout the evolution of the organization
- Communicated and received developmental advice from professionals in the field: Talent Acquisition at Blue Origin

Undergraduate Research Apprenticeship (URAP) - *"Multi-scale Morphology Control of 3D-printed Structures using Frontal Polymerization"* **2024**
University of Illinois Urbana-Champaign

Education

University of Illinois Urbana/Champaign - Bachelor of Science in Astronomy *in pursuit* **Aug. 2023 - Dec. 2024**

University of Illinois Urbana/Champaign - Bachelor of Science in Aerospace Engineering *incomplete* **Aug. 2020 - May 2023**

Academy, University, and Environment - *Soft Skills and Hard Skills*

Hard Skills	Soft Skills
• Controller Design	• Project Management
• Dynamical System Simulation	• Teamwork and Leadership
• C, intermediate Command	• Empathy and Productivity
• Data Analysis	• Technical Writing
• NX, SolidWorks, GD&T	• Communication
• TCL, Python, MatLab	• Skill Building and Self Sufficiency
• Physical Instrumentation	• Mandarin(3), Spanish(2), French(1)