SANDARU BALAHEWA

Evanston, IL | 773-754-5379 | sandarub2028@u.northwestern.edu | linkedin.com/in/sandaru-balahewa

EDUCATION

Northwestern University Evanston, IL

Bachelor of Science in **Mechanical Engineering** | Minor in **Machine Learning & Data Science** Candidate, June 2028

- Current GPA: 4.0 / 4.0

RELEVANT EXPERIENCE

Northwestern University Space Technology and Rocketry Society Evanston, IL

Payload Mechanical Subteam Member October 2024 – Present

- Lead the design efforts under senior guidance for a reaction wheel-based roll control system for payload stabilization during descent for the 2026 International Rocket Engineering Competition
- Contributed to the development of an active drag system with a "cloverleaf" crank and slider mechanism to modulate vehicle drag and achieve target apogee, placing #10 nationally
- Prepared design documentation in compliance with NASA requirements, ensuring adherence to rigorous standards

Advanced Intelligent Manufacturing Laboratory, Northwestern University Evanston, IL

Undergraduate Researcher (Summer Undergraduate Research Grant Recipient) June 2025 – August 2025

- Analyzed acoustic emission signals from laser powder-based directed energy deposition (DED) experiments to investigate powder catchment efficiency and its connection to build quality
- Processed large experimental datasets by segmenting signals, extracting time- and frequency-domain features, and applying FFT-based spectral analysis to create a reusable analysis pipeline for quantitative comparisons across experiments and time windows
- Implemented and customized advanced algorithms for spectral alignment (Dynamic Time Warping, Soft-DTW, and peak matching) in Python and MATLAB to overcome amplitude-driven artifacts, improving the accuracy of frequency-shift detection in AE signals

Northwestern University, Design Thinking & Communication I Evanston, IL

Team Member September 2024 – December 2024

- Designed and prototyped the Multiplayer Seesaw, an educational tool fostering teamwork, problem-solving, and motor skill development for people with developmental disabilities
- Organized and facilitated team meetings, delegated tasks, and ensured timely progress of project goals

Northwestern University, Design Thinking & Communication II Evanston, IL

Team Member April 2025 – June 2025

- Designed and fabricated the Rollable Ambidextrous K-Screen (RAK), a portable, ambidextrous baseball pitcher protection device improving setup efficiency by 90% compared to traditional L-screens
- Led user-centered design iterations with coaches and players, refining hinge and wheel mechanisms for safety, usability, and functionality

LEADERSHIP EXPERIENCE

The Strivers' Network Evanston, IL

Mentor August 2024 – March 2025

- Mentored high-achieving students from under-resourced backgrounds in Sri Lanka on university and scholarship applications abroad, providing personalized support to increase access to top-tier global education opportunities

Academic Support and Learning Advancement, Northwestern University Evanston, IL

Mentored Study Program Peer Leader September 2025 – Present

- Facilitate a weekly two-hour study group for Engineering Analysis courses by reviewing course materials, guiding students through complex problem sets, and reinforcing core concepts through active learning strategies

SKILLS

Design & Manufacturing: SolidWorks, Onshape, 3D Printing, Laser Cutting, Milling, Lathe Operation
Simulation and Experimental Analysis: FEA, Scanning Electron Microscopy (SEM), ImageJ
Programming: Python (NumPy, SciPy, scikit-learn, tslearn), MATLAB
Data Analysis: Signal Processing, FFT, Spectral Analysis, Algorithm Development, Data Pipelines

ADDITIONAL

International Mathematical Olympiad: Honorable Mention (2019 & 2022)