DOMINICK C. BRAICO

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EDUCATION

University of Illinois at Urbana-Champaign *Expected Graduation: May 2026*
Bachelor of Science in Mechanical Engineering *GPA: 3.88/4.00*
Minor in Computer Science

WORK EXPERIENCE

Innovative Data Consulting Inc. | *Data Analytics Intern* *May 2023 - August 2023*

- Spearheaded the development and implementation of a robust API integration utilizing SyncroMSP API for seamless data extraction and visualization, contributing to optimization of network engineer resource allocation.
- Engineered a data extraction pipeline to retrieve JSON data from SyncroMSP API, ensuring real-time and accurate information retrieval of internal company data.
- Developed custom python and power query scripts to efficiently parse and process the JSON data for optimal use in automated Power BI dashboard.
- Collaborated closely with IT staff to validate, fine-tune, and optimize the visualizations to reduce the time spent in manual reporting efforts.

EXTRACURRICULAR & LEADERSHIP ACTIVITIES

Illinois Robotics in Space (IRIS) | *Excavation Project Lead* *August 2023 - Present*

- Leading multidisciplinary team as the Excavation Project Lead for NASA's Lunabotics competition through triweekly sub team meetings and presentation of design decisions and progress at monthly wholistic team design reviews.
- Utilized SolidWorks for custom component design, collaborating on material selection, and optimizing the robot's chassis for weight reduction while ensuring durability and ease of manufacturing during fabrication period.
- Spearheaded development of power delivery from motor to excavation system through geared drive systems to optimize output torque, as well as development of custom toothed belt for power delivery to idle pulley.
- Documented design decisions and contributed innovative research insights, enhancing the robot's performance and guiding integration of custom electronic and software components.

Tau Beta Pi Engineering Honors Society | *Social Committee* *January 2023 - Present*

- Organize, plan, and lead social events for initiates and returning members.
- Developed a team goal for the year through collaboration with executive board.

PROJECTS

Industrial Robotic Arm | *Personal* *October 2023 – January 2024*

- Led the prototype design phase using SolidWorks, showcasing proficiency in detailed 3D modeling and design of critical robotic arm components.
- Optimized the SolidWorks assembly for URDF format exportation, ensuring accurate representation and compatibility with robotic simulation environments.
- Successfully integrated the Gazebo simulation environment into the project, leveraging this tool to conduct exhaustive simulations. These simulations were instrumental in assessing and validating trajectory planning, kinematics, and collision detection in simulated industrial environments.

Mechanical Product Design | *CAD Coursework* *August 2022 - December 2022*

- Developed a retractable skateboard lock prototype in Autodesk Fusion 360 and developed detailed, ASME Y14 standard engineering drawings for all 21 custom mechanical components.
- Utilized aPriori cost analysis software to identify major expenses within our team’s design, and subsequently addressed the issues through a redesign process reducing manufacturing cost by 14% including resourcing and redesigning of crucial mechanical components.

TECHNICAL SKILLS

CAD: Autodesk Fusion 360, SolidWorks, GD&T, DFM
Programming/Electronics: Python, Java, Gazebo Simulation Environment, Raspberry Pi
Tools: CNC Machining, 3D Printing, Soldering, Laser Cutting, Waterjet, Basic Shop Tools