

Richard A. McManus Jr.

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Education

University of Notre Dame

Class of 2024

- Electrical Engineering
- Overall GPA: 3.92 Major GPA: 3.97 Dean's List IEEE-HKN Honors Society Boeing Scholar

Experience

Co-founder, CEO, and Chief Engineer of Mound Power, LLC

2020 - Present

- Organized and directed a team to design and manufacture a novel multi-axis force measuring device and mobile application to analyze human ground reaction forces
- Developed proof of concept to enable baseball pitchers to understand and improve use of lower body forces to reduce injuries while continuing to improve performance
- Filed provisional patent – “Multi-Axis Force Measurement Method and Assembly”
- Spearheaded product development across 7 unique prototypes; Skills: rapid prototyping, C/C++, CAD, 3D printing, laser cutting, data acquisition circuit design, PCB layout
- Developed affordable high-resolution pressure sensing matrix to provide performance data
- Generated over \$25,000 in revenue and non-dilutive funding from multiple sources
- Selected to represent Notre Dame in the 2021 ACC Inventure Prize Competition
- Presented prototype technologies at 2022 American Baseball Coaches Association Convention
- Selected “Best Undergraduate Venture” out of 150+ competing ventures in the 2022 McCloskey New Venture Competition by a panel of industry professionals
- Implemented technology with 1000+ athletes within high school, collegiate, and Major League Baseball organizations (Chicago Cubs)

Freelance CAD Drafting

2022 - Present

- Designed and drafted CAD models for private startups and sourced small-batch manufacturing; Software: Solidworks, Fusion 360

Startup Coach for the IDEA Center at Notre Dame

2021 - Present

- Provided aspiring student entrepreneurs guidance on writing business plans, developing minimum viable products, and fundraising
- Moderated long form discussion with Robert Piconi, co-founder and CEO of Energy Vault; Topics included: entrepreneurship, innovation, renewable energy

Metadata Analyst at AIDA Content Management

2021 - Present

- Drastically reduced data asset processing time through automation with Python scripts
- Improved drone operator cell tower damage assessments by training 3rd party AI/ML models and generating 3D maps

College of Arts and Letters IT Technician

2020 - Present

- Collaborated with Notre Dame staff and faculty to solve technical issues and create a more efficient process for computer imaging

Race to Revenue Internship – IDEA Center

Summer 2021

- Worked full-time on Mound Power, LLC with provided mentorship and funds
- Generated Mound Power’s initial revenue from novel marketing/sales plan
- Actively interacted with over 50 guest entrepreneurial professionals

Activities

Sorin Honors Scholar

2021 - Present

- One of 16 scholars from a class of 2,000 based on scholarly and extracurricular merit

Grand Challenges Scholar

2021 - Present

- Accepted into highly selective research-oriented honors program that provides mentorship to researchers focused on engineering the tools of scientific discovery
- Integrated 5 core competencies into academic plan: Research, Interdisciplinary Coursework, Entrepreneurship, Global Experience, Community Engagement

Adiabatic Reversible Logic Electrical Engineering Undergraduate Research– Snider Group

2021 - Present

- Developed a novel test environment for heat production of adiabatic microprocessors using a thermocouple, Peltier modules, amplifiers, and data acquisition components
- Utilized Origin to model test waveforms and developed Python GUI to remotely synchronize and program two Zurich HDAWGs using the Zurich LabOne API
- Developed Verilog script to integrate a Xilinx Virtex-7 VC707 FPGA with an adiabatic microprocessor to write instructions to the microprocessor, synchronize clock signals, and store results back to FPGA memory; Software: Vivado, Verilog
- Laid out multiple printed circuit boards for passive and active level shifting; Software: Design Spark, Autodesk Eagle, Cadence Virtuoso