Richard A. McManus Jr.

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Education

University of Notre Dame *Class of 2024*

- Electrical Engineering Overall GPA: 3.923 Major GPA: 3.961
- Dean's List IEEE-HKN Honors Society Sorin Scholar Grand Challenges Scholar 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
- Filed provisional patent – "Multi-Axis Force Measurement Method and Assembly"
- Spearheaded product development across 7 unique prototypes
- 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 technology at 2022 American Baseball Coaches Association Convention
- Awarded "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)

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*

- Assembled a novel test environment for heat production of adiabatic microprocessors using a thermocouple, Peltier modules, amplifiers, etc.
- Utilized Origin to model test waveforms and developed Python GUI to remotely synchronize and program two Zurich HDAWGs using the Zurich LabOne Python 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
- Designed multiple printed circuit boards for passive and active level shifting;

Relevant Skills

- Autodesk Eagle, Cadence Spectre, Cadence Virtuoso, C/C++, Design Spark PCB, Fusion 360, Keysight Technologies' Advanced Designed System (ADS), Matlab, Python, Solidworks, Verilog

Relevant Courses

- Electronic and Optoelectronic Devices, Fundamentals of Semiconductors, Logic Design, Microelectronic Circuit Design, Optics and Photonics, Signals and Systems, Very Large-Scale Integration (VLSI) Circuit Design