Matthew Quinn Gothard

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Education

Vanderbilt University **August 2017 - May 2021**
Bachelor of Engineering: Mechanical Engineering, 3.69 GPA *Nashville, TN*

Trinity College Dublin **January 2020 – April 2020**
Mechanical and Manufacturing Engineering, Visitor *Dublin, IE*

Technical Skills

Programming: Python, C++, MATLAB, Simulink, LabVIEW, JavaScript, Git

Design: Solidworks, PTC Creo, AutoCAD, Fusion 360, Autodesk Eagle, Adobe Illustrator

Manufacturing: Mill, Lathe, Bandsaw, Drill Press, CNC Router, Laser Cutter, SLA, SLS, FFF 3D printers

Professional Experience

Undergraduate Student Researcher **September 2019 – May 2021**
Vanderbilt Robotics and Autonomous Systems Lab *Nashville, TN*
- Designed a soft robotic system capable of physically emulating the weight of objects in virtual reality
- Designed a rotational haptic feedback system to be used in a virtual reality simulation for children with autism

SyBBURE Searle Undergraduate Research Program Student Fellow **December 2017 – May 2021**
Vanderbilt University *Nashville, TN*
- Engaged in multidisciplinary team-based design projects, such as low-cost collapsible furniture for dorm rooms
- Led biweekly meetings of student researchers to provide feedback and advice

Research and Development Engineering Intern **June 2019 - July 2019**
NASA Marshall Space Flight Center, Advanced Concepts Office *Huntsville, AL*
- Developed Correlated Electromagnetic Levitation Actuator design and testing protocol
- Designed probe mounted on a 6-axis robotic arm capable of selectively magnetizing a neodymium plate
- Wrote technical reports detailing current research efforts and contributed to funding proposal report and video

Mechanical Engineering Intern **June 2019 - August 2019**
Formlabs Inc *Durham, NC*
- Designed, built, and coded a test jig for the factory calibration of the Form 3 SLA 3D printer
- Assembled and scripted a jig which streamlined the collection and visualization of data from hundreds of experimental trials

Senior Design Mentor **September 2018 - May 2019**
Vanderbilt University *Nashville, TN*
- Coached a senior electrical engineer through incorporating microcontrollers into a physiological sensing prototype
- Generated reasonable and timely goals for the prototyping of the senior design project for two semesters

Undergraduate Student Researcher **January 2018 - May 2019**
Vanderbilt Physiological Sensing Lab *Nashville, TN*
- Designed and built a pressure sensitive shoe insole to predict fall risk using custom-etched flexible circuitry
- Programmed a custom graphical user interface of the insole array with a real-time, interpolated heatmap in MATLAB

Honors and Awards

Bruce and Bridgett Evans Scholarship **August 2018**
- Received the award due to interest and aptitude in entrepreneurship and recommendation by Vanderbilt faculty

Summer Research Achievement Award **August 2018**
- Achieved the most summer research progress out of 50 undergraduate students in the SyBBURE Research Program

Selected Presentations

Vanderbilt ArtLab: Utilizing Art-Influenced Design **Nashville Maker Faire 2019**
Machine Design for Long-Exposure Artwork **ArtLab Exhibition 2019**
Transform Students into Vigilante Innovators **VentureWell Open 2019**
Design of a Flexible Pressure-Sensing Insole for Gait Analysis **BMES Conference 2018**