

THADDEUS HUGHES

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Education

Bachelor of Science, Mechanical Engineering

Rose-Hulman Institute of Technology - Minors in EE, CS, Computational Science - GPA 3.85/4

May 2019

Experience

Mech. Design Engineer - DEKA Research and Development

June 2019 - Present

- CAD Design, FE Analysis, Physical Prototyping, light machine work
- Initial product development
- Cost-down and DFM efforts for products in clinical development

Mech. Eng. Intern - Textron Specialized Vehicles

June - August 2018

- Assisting current engineers in cost-down efforts on new golf car line
- Creating alternative designs to reduce cost and improve reliability of existing product

Technical Director - Formula SAE (RoseGPE)

May 2017 - May 2019

- Managing 30+ person engineering team for student design competition, 20-60 hrs/week
- Managing vehicle design and providing technical guidance and oversight for all teams and analyses
- Generate requirements documentation to provide clear goals for vehicle development
- Developed new laptime simulation package to test vehicle concepts and study effects of parameters on performance

Drivetrain/Actuation/Unsprung Mass Lead(s) - Formula SAE (RoseGPE)

Sep 2015 - May 2018

- Analyzed and designed drivetrain and unsprung mass systems to reduce mass and increase strength with FEA
- Worked with manufactureres to produce prototype parts
- Designed, fabricated, and tested prototype electronic shifting and clutch actuators

Simulation Engineering Intern - Caterpillar

June - August 2017

- Learned torsional vibration analysis (TVA) and other engine simulation tools
- Developed new analysis methods for natural gas engines
- Analyzed variations in engine characteristics due to variations in cylinder pressure

Machinery Operator, Tech Support - Progressive Prairie, Inc

August 2009 - July 2015

- Work for family's farm operation, 10-80 hrs/wk
- Upkeep and repair of heavy equipment and electronics
- Designed network to access and control grain dryer and onsite fileserver

Skills / Tech Experience

- **CAD** - SOLIDWORKS (5 years), NX, Creo/ProE, OnShape
- **Simulation** - FEA (5 yr ANSYS, SOLIDWORKS, 1 yr MecWay), TVA Modeling, self-written simulations
- **System Analysis** - Statics, Fatigue, Mech./Fluid/Elec. Systems, Vehicle Dynamics, 3D Dynamics
- **Programming** - C/C++, C#, Python, Java, Arduino, JS, PHP (all 6-9 years), MATLAB (5yrs)
Experience with advanced libraries like OpenCV, scipy/matplotlib, full-stack development
- **Machining** - Mill/Lathe, Shear/Brake, etc. (5/8 yrs) and TIG/MIG Welding (5/10 yrs), CAM (HSMWorks - 2 yrs)
- **Collaboration**, documentation and team management skills

Other

- Board Member of the Manchester Makerspace
- FRC Team 501 Mentor
- Former FRC/FLL Team Captain/Mentor
- FIRST Robotics Competition Dean's List Finalist