COLTON RAINEY

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EDUCATION

University of Illinois at Urbana-Champaign **3.96/4.00**

B.S. Mechanical Engineering — May 2019 Chancellor's Scholar, James Scholar

RESEARCH

Reversible Dry Adhesives Champaign, IL

Research Assistant for Professor Seok Kim Spring 2018 - Present

- Work in a lab alongside 1 graduate student under the supervision of an established professor
- Study the functionality and properties of shape memory polymer as a reversible dry adhesive
- Design, construct, and test prototypes that utilize the capabilities of shape memory polymer
- Apply theoretical knowledge of mechanical design, heat transfer, circuits, and solid mechanics

Rubber Guardrail Simulation and Optimization Madrid, Spain

Research Assistant for Professor Jesus Jimenez Summer 2018

- Designed and modeled a guardrail in Solidworks with a rubber layer for experimentation
- Simulated projectile collisions against the guardrail with the explicit dynamics feature in Ansys
- Created guardrail thicknesses as parameters that can be optimized for safety, cost, and weight
- Accounted for uncertainties in collision specifications and material properties with Six Sigma analysis

EXPERIENCE

TAM 251: Solid Mechanics Champaign, IL

Course Assistant Spring 2018 - Present

- Use strong communication skills and knowledge of solid mechanics to teach the course effectively
- Assist in running the course alongside a graduate teaching assistant through weekly discussion sections
- Responsible for hosting office hours where students can ask questions about the course material

Illini EcoConcept Car Team Champaign, IL

Body Team, Chassis Team Fall 2016 - Spring 2018

- Designed and constructed a treadmill to repeatedly test and optimize the efficiency of the car
- Utilized finite element method to analyze the stresses and strains on various members within the chassis
- Optimized an aerodynamic design of the car body mirrors by using computational fluid dynamics

Littelfuse, Inc. Champaign, IL

Engineering Intern Summer 2017

- Constructed and tested square-body fuses to begin the manufacturing process of a new product line
- Collaborated with a team of 3 mechanical engineers in a professional and results-driven industry
- Managed the fuse testing assembly line to efficiently meet phase deadlines

ACTIVITIES

- Pi Tau Sigma Honor Society, *Robotics Team* Fall 2018 - Present
- Engineering Outreach Society, *Active Member* Fall 2017 - Present
- Intramural Softball, *Team Captain* Fall 2017 - Present
- American Society of Mechanical Engineers, *Active Member* Fall 2016 - Present
- Illini Life Christian Fellowship, *Huddle Leader* Fall 2016 - Present
- Campus Honors Program, *Student Leader* Fall 2015 - Present
- Hagan Scholar Program, *Award Recipient, Workshop Volunteer* Fall 2015 - Present

SKILLS

- **Programming:** Python, C++, Matlab, Arduino
- **CAD:** SolidWorks, PTC Creo, Autodesk Inventor, Design Modeler, Avogadro, Ovito, Ansys
- **Technical:** Machine Shop Training, Soldering, Finite Element Analysis, Computational Fluid Dynamics