Joshua David Eckels

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Education :	**Bachelor of Science, Mechanical Engineering GPA 3.98/4.0**	**Aug 2017 – May 2021**
	Rose-Hulman Institute of Technology, Terre Haute, IN 47803	

- Minors: Computer science, Aerospace engineering
- Courses: Thermodynamics, Fluids, Propulsion, Statics, Materials, Dynamics, Controls, Programming, Data structures, Computer architecture
- Leadership/involvement: Grand prix engineering (GPE), Maker lab, Tau Beta Pi
  Chorus, Chamber, Acappella (president)

Experience :	**REU at Virginia Tech**, Blacksburg, VA 24061	**June 2019 – Aug 2019**
	Researcher – 40 hr / week	

- Research Experience for Undergraduates (REU) in Automotive Engineering
- Accessibility constraint mapping for on-road, off-road, indoor autonomous transit/delivery
- Investigated and classified navigation constraints and barriers for autonomous vehicles
- Utilized Robotic Operating System (ROS) and computer vision (OpenCV) software to identify and localize barriers/constraints in a 3D global mapping framework
- Integrated with existing Simultaneous Localization and Mapping (SLAM) and convolutional neural networks (CNNs) software for robotic navigation

Metronet Inc., 3701 Communications Way, Evansville, IN 47715	**June 2018 – Aug 2018**
Design Intern – 40 hr / week	

- Updated and maintained company as-built fiber designs utilizing GIS software
- Revised and performed quality control on over 100 outsourced fiber network designs
- Generated 10 fiber network construction drawings and bills of materials for new markets
- Compiled and documented a 50-page procedure manual

Projects :	**Java – Software development**	**Sept 2018**

- Utilized software engineering principles to design a computer application
- Implemented Java classes utilizing UML, polymorphism, interfaces, Java-swing GUI

Python – Robotics	**Feb 2018**

- Implemented Python classes for remote robot functionality
- Leveraged Python graphics and shell scripting for robotic control and navigation

Skills :	**Computer skills**

- Python, Java, C, C++
- Matlab, Simulink, Maple
- Solidworks, AutoCAD, Inventor
- MIPS assembly, Verilog, Xilinx
- Geographical information systems (3-GIS)
- Linux, Ubuntu, Windows, Shell scripting and automation, Git
- Computer vision (OpenCV), Convolutional neural networks (Keras, TensorFlow)
- Robotic Operating System (ROS), Simultaneous Localization and Mapping (SLAM)

Other skills/interests

- Gas metal arc welding (GMARC)
- Shop equipment (mills, lathes, saws, CNC, etc.)
- Computational fluid dynamics (CFD), Finite element analysis (FEA)