**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,

Programming, Data structures, Computer architecture

* Leadership/involvement: Grand prix engineering (GPE), Maker lab, Design Build Fly (DBF),

Chorus, Chamber, Acappella (president), Tau Beta Pi

**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

**AskRose Homework Help,** 5500 Wabash Ave, Terre Haute, IN 47803 **Aug 2017 – present**

**Tutor** – 4 hr / week

* Advised and strengthened students in their learning and homework
* Utilized various media resources to communicate problem-solving strategies

**Various parks and recreational centers,** Evansville, IN 47715 **2016 – present**

**Lifeguard** – 30 hr / week

* Supervised and accounted for well-being of all patrons
* Maintained pool deck and accommodated manager’s needs

**Projects : Thermofluids – Turbojet analysis March 2019**

* Utilized Matlab to model inlet/outlet properties of turbojet/turbofan engines
* Optimized engine design utilizing cycle analysis

**MIPS – Computer processor Feb 2019**

* Designed and implemented a 16-bit assembly language
* Executed a relative prime algorithm in 1.8 ms.
* Designed a processor capable of 87.6 Mhz clock speed
* Developed extensive test benches in Verilog

**Matlab – Simulink optimization Jan 2019**

* Utilized Simulink to model physical systems and analyze experimental data
* Optimized residual swing velocity of a dynamic crane-pendulum apparatus

**Java – Software development Sept 2018**

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

**Design – Product improvement April 2018**

* Innovated product design using CAD software and reverse engineering techniques
* Compiled and documented detail drawings and bill of material for new product

**Python – Robotics Feb 2018**

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

**Statics – Strength analysis Oct 2017**

* Analyzed stress and strain relationships in a static crane system
* Optimized cost and weight of linkage system based on material properties

**Fabrication – Design and construction July 2017**

* Utilized CAD software to design and model a chair assembly
* Demonstrated proficiency in shop environment utilizing various shop machinery

**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)

**Activities: Extracurricular**

* President – Acappella club
* Director – Chamber choir
* Secretary – Chorus
* Pianist – Pit orchestra
* Member – Grand prix engineering (GPE) team
* Member – Maker lab
* Member – Design build fly (DBF) team

**Honors**

* Tau Beta Pi engineering honor society
* Rose-Hulman Dean’s list

**References : Dr. James Mayhew**

Professor of Mechanical Engineering

Rose-Hulman Institute of Technology

5500 Wabash Ave, Terre Haute, IN 47803

mayhew@rose-hulman.edu

+1 (812) 877-8917

**Dr. Aimee Cloutier**

Assistant Professor of Mechanical Engineering

Rose-Hulman Institute of Technology

5500 Wabash Ave, Terre Haute, IN 47803

cloutier@rose-hulman.edu

+1 (812) 877-8879

**Dr. Michael Moorhead**

Assistant Professor of Mechanical Engineering

Rose-Hulman Institute of Technology

5500 Wabash Ave, Terre Haute, IN 47803

moorhead@rose-hulman.edu

+1 (812) 877-8829

**Mr. Hani Awni**

Biotechnologist and Software Engineer

Virginia Polytechnic Institute and State University

14105 Edgewater Ct., Libertyville, IL 60048

hani.awni@gmail.com

+1 (224) 715-5995