# Ryker Zierden

1-218-340-1256 · rykerzierden@gmail.com

## EDUCATION

**Bachelor of Mechanical Engineering** **09/2018 – 05/2022**
College of Science and Engineering, University of Minnesota – Twin Cities
Minor in Computer Science
GPA: 3.80
Marguerite Gilmore Scholarship and Presidential Scholarship Recipient

## SKILLS

**Programming Languages/Software:** Assembly, C/C++, C#, Git, HTML, Java, JavaScript, Keras, MATLAB, NumPy, OpenCV, Python, TensorFlow, Unity, Visual Basic Application, Visual Basic Core

**Analyses/Tools:** Homogenous Transformations, Linear Algebra/Differential Equations, Multivariable Calculus

## RELATED EXPERIENCE

**Mechanical Engineering Intern,** BAE Systems Inc., Minneapolis, MN **06/2021 – Present**
- Wrote automation scripts in Visual Basic using the PTC Creo API to eliminate repetitive tasks in changing filenames, parameter values, etc
- Assisted with engineering IT work such as deploying new software and problem-solving engineering software issues

**Undergraduate TA,** University of Minnesota CS Department, Minneapolis, MN **09/2021 – 12/2021**
- Helped teach concepts related to the functionality of low-level computer architectures
- Led office hours, lab sections, and online forums to assist students debug C and Assembly code

**Quality Intern,** Natural Resources Research Institute, Duluth, MN **06/2019 – 08/2019**
- Analyzed data to troubleshoot sensor data stream issues and optimize manufacturing process
- Created a comprehensive guide of Google Suite, using figures and descriptions to outline advanced features to less experienced users
- Modeled a small kiln in SolidWorks and highlighted several options for exhaust systems

**Computer Technician,** Computer Resources, Duluth, MN **09/2017 – 07/2019**
- Diagnosed and repaired a large variety of hardware and software problems on laptops and desktops down to the component level
- Worked with customers in sales and repairs and provided pleasant customer service

## PROJECTS

**Modular Haptic Fabric,** ME4054W Senior Design Projects **01/2022 – 04/2022**
- Designed a modular haptic fabric that allows for more immersive virtual reality experiences by providing different haptic sensations to the user as well tracking their motion in 3D space
- Programmed in C and C# to enable accurate communication between the haptic modules and the Unity virtual reality experience, including serializing and transferring data via I2C and USB connections, storing and parsing configuration states in text files, and managing the module data during runtime
- Created two Unity demonstrations to showcase the features of the software and hardware during the design show and assisted in the fabrication and wiring of the electrical box used in the demo

**Near-Earth Comets Visualization Project,** CSCI 5609 Visualization **02/2022 – 04/2022**
- Visualized the orbits of near-earth comets in a virtual reality application
- Designed an object-oriented system in C# to store comet data and practiced encoding data into physical mediums to make an educational and eye-catching user experience

**Constellations VR Application,** CSCI 5619 Virtual Reality and 3D Interaction **09/2021 – 12/2021**
- Used Unity with C# to create an interactive virtual reality astronomy application for the Oculus Quest
- Designed and implemented a new interactive object called the “Magic Panel”, which allows the user to zoom in, take snapshots, and see more information about constellations within the virtual environment