ROMAN YODER, **WEBSITE:** WWW.RAYPROENGINEERING.COM ,

EMAIL: RAYPROENGINEERING@GMAIL.COM, **PHONE:** (480) 249-2201

Education

- M.S. In Mechanical Engineering (Robotics)
  Texas A&M University
  GPA: 3.72
  (Aug 2021-December 2023)
- B.S. In Mechanical Engineering
  Colorado State University
  GPA: 3.65
  (Aug 2017-May 2021)

Contract Work

Medtronic: Research Engineer (Spring 2023)

- Successful implementation of method to identify and generate paths through model of a lungs vascular network
- Generated path utilized to guide an autonomous robotic catheter to desired points

Projects

Thesis in Automated Welding

- Tailored the solution to local manufacturer's needs and recommendations
- Successful automation of welding utilizing a 6-axis Universal Robot arm
- Integrated MIG welding apparatus with robotic arm
- Custom Traveling Salesman Problem Solver utilizing a Mixed Integer Program
- ROS and Python for path planning, part interpretation and control
- Human-robot collaboration to identify work-piece location

Reinforcement Learning

- Characterize various RL algorithms and possible domains
- Implement a variety of RL algorithms in python
- Course project utilizing an actor critic model to control the trajectory of an interceptor missile

Non-Linear Controls

- Exploration of classic non-linear techniques including adaptive control, feedback linearization and sliding mode control
- Course project that utilized feedback linearization for control of a missile

Mechanics of Robotic Manipulators

- Course Project in motion planning for a 3 degree of freedom robotic arm in MATLAB
- Course Project for Dubbin's Vehicle to solve optimum trajectory between two points with provided headings; coupled with a provided Traveling Salesman solver to find the optimum path through a network of points

Keypad Controlled Electro-Mechanical Door Lock – Mechatronics

- hardware/software implementation for a microcontroller-based door lock; utilizing keypads, photoresistors and proximity sensors

Capstone Senior Research Practicum in Jet Impingement Server Cooling

- Qualified for course based on high academic standing
- Conducted graduate-level research developing single investigator skills: reviewing open literature, problem definition, research plan development, skill integration and project execution
- Developed a server cooling demo/test
- Created pressure drop models and diagrams

Additional Courses and Skills in

- Dynamics/Modeling of Mechatronic Systems
- Control System Design
- Survey Of Optimization
- Advanced Mechanical Systems
- Vehicle Dynamics
- Graduate Combustion
- Graduate Turbo Machinery
- Python, ROS, C++, BASH