

Eric Tola

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OBJECTIVE

Striving to gain an engineering position in a world renowned corporation.

EDUCATION

State University of New York, Stony Brook University

Bachelors of Engineering (B.E.) - Mechanical Engineering - 3.26/4.00 - May 2016

Masters of Science (M.S.) - Mechanical Engineering - 3.22/4.00 - Dec 2018

Thesis: Underactuated In-Hand Manipulation Planning with Underactuated Robotic Hands

Advisor: Dr. Nilanjan Chakraborty

TECHNICAL SKILLS

Programming Languages	C, C++, Python, MATLAB, Simulink, Embedded , LabVIEW, CNC G-Code/M-Code
CAD/CAE Software	Solidworks, Altium, AutoCAD, KiCad, Simens NX Unigraphics, Creo Parametric, Pro E
Machining	End Mills, Lathes, Welding, Band Saws, CNC, WEDM, Rapid Prototyping/3D Printing, Laser Cutters, Water Jet Machines.
Special Topics and Skills	Linux/Unix, Robot Operating System (ROS), Embedded Systems, Controller Design, Finite Element Analysis (FEA), Latex, Git, Computer Vision, Motion Planning, Robot Kinematics and Dynamics, CAN bus RS232/Serial Communication.

WORK EXPERIENCE

OffWorld

Robotics and Control Engineer

Jan 2018 - Present

Pasadena, California

- Mechanical and electrical design of robotic sensors, robot arm end-effector tools, heavy duty mobility platform systems.
- Component selection, circuit design, and assembly of PCBs for different robotic systems.
- Microcontroller and single board computer development and integration on robotic mining systems.
- Sensor filter implementation, Motor control system development and implementation on collection, excavation and processing robotic systems.
- Developed dynamic models for robotic tool and mobility systems. Design parameters were approximated from the dynamic model given desired input parameters.
- FEA analysis of mechanical components for failure analysis and prevention.
- Fabrication and integration of robotic mining system components.

iRobot

System Test Engineering Intern

Jan 2017 - Aug 2017

Bedford, Massachusetts

- Developed, in LabVIEW, the controls and GUI for an automated Traction and Stiction Fixture used to debug mobility issues on robots.
- Designed a hand-held fine debris fixture used for cleaning and claims testing on robots.
- Developed delta arm prototype for automated test fixtures.

Cummins

Vehicle Modeling Intern

May 2016 - August 2016

Columbus, Indiana

- Programmatically developed a Graphical User Interface (GUI) in MATLAB capable of performing post processing on vehicle simulation data. It was released as part of the simulation package at the end of my internship.
- Conducted batch variable sensitivity testing on the vehicle simulation and observed the behavior on the clutch model. Outlined how to tune vehicle simulation clutch model based on data collected from testing.

National Grid

Mechanical Engineering Intern

May 2015 - August 2015

Brooklyn, New York

- Designed gas main routes using techniques learned from mentoring engineers.
- Worked on project sites to walk-out job sites to determine a gas main route.
- Wrote Standard Operating Procedures (SOP) for several gas piping integrity and reinforcement projects.

RESEARCH EXPERIENCE

Underactuated Robotic Hand for In-Hand Manipulation

Graduate Researcher

January 2015 - Dec 2018

Professor: Dr. Nilanjan Chakraborty

[Video](#) [CAD Model](#)

- Mechanical, electrical and software development of a tendon driven underactuated robotic hand.
- Analysis of the robotic hand using manipulator kinematics and dynamics.
- Researching control methods to allow for in-hand manipulation of grasped objects.

The Engine Combustion Research Group

Undergraduate Researcher

August 2015 - May 2016

Professor: Dr. Benjamin Lawler

- Utilized MATLAB to apply numerical methods to engine testing data.
- Use of numerical approximations of pressure and volume derivatives and integrals to accurately graph engine cycles.
- Built, installed and programmed a LabVIEW data acquisition system for a Cooperative Fuel Research (CFR) engine.

Institute for Information and Communications Technology Promotion (IITP)

IITP Student Assistant

August 2015 - December 2015

Stony Brook University

- [Video](#)
- Worked with two exchange students to develop design grasping algorithms for the research manipulator robot, Baxter.
- Programming done in python in an Linux environment using ROS to communicate with and control the robot.
- Implemented computer vision methods using OpenCV to determine graspable objects and their positions.

Freshmen Design Innovation MEC 101

Student Technical Adviser

August 2014 - December 2014

Stony Brook University

- Assisted freshmen mechanical engineering students in their intro class.
- Provided aide for home-works and their class designs.
- Mentored students on how to troubleshoot and solve problems. Machined metal parts for students.
- Aided with Arduino programming, debugging and circuit design.