ONUR TALU

MECHANICAL ENGINEER

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Skills

SOFTWARE
SolidWorks
Adams Car
AutoCAD
Finite Element Analysis
Ubuntu
Python
MATLAB
Mathematica
LaTeX
Arduino C
HTML/CSS

FABRICATION
Rapid Prototyping
CNC Router
Lathe
Mill
MIG Welding
TIG Welding
Sheet Metal
Laser Cutter
3D Printing
Green Machines
Woodworking

LANGUAGES
Turkish
German

Education

Olin College of Engineering
Mechanical Engineering Bachelor of Science 2020
GPA 3.97
50% Olin Tuition Merit Scholarship

American Collegiate Institute
International Baccalaureate DP 2016

Experience

Mechanical Engineering Intern
Cambridge, MA
Shell TechWorks
May 2018 to Aug. 2018

- Used Solidworks to design pressure gauge enclosure that would be would be used in hydrostatic testing.
- Performed iterative design process to make enclosure more aesthetic, compact and robust, and be able to be mass produced by injection molding.
- Utilized 3D printers and laser cutter to build prototypes of the enclosure, last of which was selected as version to be used in next iteration.
- Developed a cost analysis model that simulated how Shell's decisions on changing fuel types on marine fuels would impact payback time.
- Cost analysis model is used by stakeholders as calculator for payback time under different price levels, regulation standards and start years.

Suspension Geometry/Chassis Designer
Needham, MA
FSAE Olin Electric Motorsports
June 2017 to Current

- Working on the overall suspension geometry and chassis design of Olin Electric Motorsports' fourth generation FSAE (Mk.IV) car.
- Utilizing Optimum K, MF-Tyre and MATLAB to give optimal decisions on tire selection and new geometry.
- Designed the rear suspension geometry of Mk. III, including FVSA, SVSA geometries, rocker-spring-damper system.
- Used Solidworks to design control arms, members, rockers, suspension adjustment jigs, tabs.
- Used MATLAB and Adams Car, to optimize for characteristics that will increase performance of vehicle.
- Performed Finite Element Analysis (FEA) on tabs and fasteners.
- Manufactured tabs, control arms, suspension jigs, using 3D printers, lathe and mill, and oversaw the TIG welding of rear suspension.

Research Assistant
Needham, MA
Olin College Blind Sailing Lab
June 2017 to Current

- Working on introducing and distributing first prototype of system to sailing centers and teaching instructors on using system
- Designed first prototype of an assistive system for blind sailors that compete in match racing
- Improved previous Homerus Blind Match Racing technology to be more useful, more robust, cheaper and easily adaptable for different uses
- Programmed RaspberryPi with Python, equipped system with GPS units, optimized communication between components
- Conducted user oriented design to improve mechanical and software components of system

Water Cooling Engineer
Needham, MA
FSAE Olin Electric Motorsports
Sept. 2016 to May 2017

- Built water cooling systems for motor and motor controllers in electric FSAE car
- Investigated heat loads, ran experiments in conduction and aerodynamics using wind tunnel
- Designed components and systems using Solidworks and manufactured parts and assemblies
- Car passed all technical inspections and raced for 6 laps in Formula SAE Lincoln 2017

Projects

Portfolio
otalu.github.io/Portfolio

Bounce
Oct. 2017 to Dec. 2017

- Built a stewart platform that bounces a ping pong ball, in a team of five.
- Did mechanical design for the top and bottom plates of platform, sensor and laser mounts, alternative hitting mechanism with solenoids.
- Manufactured parts using 3D printer and laser cutter, and assembled system.

Steady State Flight
Nov. 2017 to Current

- Modelling and simulating the steady state flight of a DeHavilland Beaver in 2D.
- Used Mathematica and XFoil to model longitudinal stability of the aircraft, keeping it at a specific altitude for a desired velocity, and controlling the elevator angle.
- Simulate the flight using Simulink, interfaced with FlightGear.

Stand Up Rocky
Oct. 2017 to Nov. 2017

- Wrote a PI controller to balance a Pololu Balboa robot on its wheels - making an inverted pendulum.
- Used Mathematica to model the controller that would keep it balancing, while not drifting away, interfaced with the robot using Arduino.
- Stood up for 45 minutes straight, while not drifting away more than half a foot.