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 4.0
50% Olin Tuition Merit Scholarship

American Collegiate Institute
International Baccalaureate DP 2016

Experience

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

- Designing suspension geometry and chassis for an electric FSAE car
- Using Solidworks, MATLAB and Adams Car, to optimize for characteristics that will increase performance of vehicle
- Front and side view swing arm geometries, chassis design by FSAE rules, rocker, shock, control arm placement
- Analyzing jacking forces, camber characteristics, effects of weight transfer, "anti" properties of car

Research Assistant
Needham, MA
Olin College Blind Sailing Lab
Jun 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
Sep 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

Entrepreneur
Izmir, TR
Junior Achievement ACI - President
Sep 2012 to Jun 2016

- Worked in, founded and ran 10 student businesses
- Went to three international trade fairs, two times as team leader
- Competed individually in Istanbul Remixopolis trice, received best solution award twice
- Co-founded Junior Achievement Turkey Alumni Association, to keep network of JA Turkey graduates, after high school

Mechanical Engineering Intern
Bodrum, TR
Duru Mechanics & Engineering
Jul 2016 to Aug 2016

- Designed HVAC and fire prevention systems for office spaces, shopping centers and residences
- Did heat load and water volume calculations, made CAD models of system, research components and implemented system

Projects

Portfolio
otalu.github.io/Portfolio

Relationship of Specific Energy of Biodiesel with Different Cooking Oils
Jun 2015 to Mar 2016

- Experimented with synthesizing biodiesel from top three most popular cooking oil types in Turkey, to optimize for a renewable, high specific energy fuel.
- Procedure and design was sent to Middle Eastern Technical University in Ankara to be used as lab practical.

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.

Babywarmer
Sep 2017 to Oct 2017

- Used Mathematica to design PI controlled babywarmer that would reach the desired temperature as fast as possible, while limiting the power consumption, for users in developing countries.
- Ran small-scaled experiments, using Arduino and heating pads, to validate the model.

Team Leggo
Mar 2017 to May 2017

- Teamed up with group of five to write Python program that allows user to put in any image and turns it into LEGO set.
- Program takes in image and user's budget for project from user, and returns same image rebuilt with 1x1 LEGO tiles – of highest resolution that fits the user's budget – along with bill of materials.

Portfolio
For more: otalu.github.io/Portfolio

Boatbuilding
Jan 2017 to Feb 2017

- Did 3D mathematical modelling and designed a small scaled boat, using Mathematica and Solidworks.
- Carried 750g additional weight, floated flat, had AVS between 120 and 140 degrees and passed speed test.