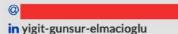


YİĞİT GÜNSÜR ELMACIOĞLU

Senior Mechanical Engineering and Physics Student



♥ yigitelmacioglu.com

LANGUAGES

English: TOEFL IBT: 104/120 French: Upper Intermediate

Italian: Beginner Turkish: Native

COMPUTER SKILLS

C++ Python Solidworks

MATLAB Simulink ROS

ANSYS Mechanical LaTeX

C HTML/CSS Blender

ANSYS Fluent Inkscape

Microsoft Office

STUDY ABROAD

Universite de Lorraine

- ## July Aug 2014
- Nancy, FRANCE
- Summer University Courses for Foreign Students

Institut Lyonnais

- m July Aug 2013
- ♀ Lyon, FRANCE
- · Certificate of French Studies

INTERESTS

Aerospace Aeronautics

R&D Simulation Physics

CAD Modelling Robotics

Problem Solving

EDUCATION

Boğaziçi University | Mechanical Engineering | Physics (Double Major Program)

m September 2017 - Present

♥ İstanbul, TURKEY

- GPA: 3.90/4.00
- Activities: BUMERANG Rocket Team | RASAT CanSat Team | BUSTLab
- Top student in the Department of Mechanical Engineering
- TUBİTAK 2205 Scholarship Undergraduate Scholarship for Science Student
- 0.02% in Nation-wide University Placement Exam in Maths & Sciences

Galatasaray High School

m September 2012 - June 2017

♥ İstanbul, TURKEY

- GPA: 87.59/100
- Activities: Volleyball Team Captain | Guitarist at student band | Art Club Member
- 0.02% in Nation-wide High School Placement Exam
- · Equivalent to French Baccalauréat

PROJECTS

*for more details check my personal website

Magnetically Actuated Guidewire Design for MRI Scanners

June 2022 - Present

- Under the supervision of Prof. Metin Sitti and Mehmet Efe Tiryaki, I designed an actuation
 mechanism for guidewires using the permanent magnetic field of MRI. The Cosserat rod model
 is used for soft body mechanics simulation in C++ and ROS with magnetic force and moments.
 VSM is extensively used to investigate the continuous magnetization of the permanent magnet in high magnetic fields (B>0.5T).
- PUBLICATION: M. Efe Tiryaki, Yigit G. Elmacioglu, Metin Sitti, Magnetic Guidewire Steering at Ultrahigh Magnetic Field, Submitted

Numerical Simulation of Particle Trajectories in Ion Thruster Grid Region Plasma using a PIC-DSMC Code

January 2022 - Present

I am working with Prof. Murat Çelik on the Simulation of an Ion thruster grid region using an
in-house written plasma physics code in C++. Iterative GMRES and Eigen solvers are used to
compute potential values from Poisson's equation. The probabilistic Monte Carlo technique is
used for collisions, initial position, and velocity assignments.

Weight Compensation Mechanism for an Elastic Metamaterial

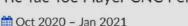
October 2021 - June 2022

 As the senior design project, I worked with Prof. Çetin Yılmaz on a weight compensation mechanism for an elastic metamaterial that uses inertial amplification to generate low-frequency band gaps.

Compressor, Overdrive and Delay Effect Pedals

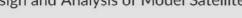
- March 2022 June 2022
- Starting with the schematic of classic effect pedals for electric guitar, the sound difference created by each component such as capacitor, op-amp, OTA, diode, and transistor is observed. Additionally, soldering and various manufacturing techniques are practiced.

Tic Tac Toe Player CNC Pen Plotter



 As the term project of ME331-Mechatronics course, with a group of 6 people, we built a CNC Pen Plotter which uses Image Processing. I was in charge of the construction and electronics of the machine as well as testing the Python code.

Design and Analysis of Model Satellite



- m Dec 2020 March 2021
- As the leader of the mechanical group of the RASAT CanSat team, I worked on structural parts of the satellite design which involves a controlled landing mechanism.

3DOF Simulation of Model Rocket | 🔁

- may 2021 May 2021
- As a member of the Bumerang Rocket Team for TeknoFest, I wrote a MATLAB code to simulate and visualize 10 000ft altitude rocket trajectory considering changing atmospheric conditions and aerodynamic coefficients.

EXPERIENCE

BUSTLab | Undergraduate Researcher

Ct 2021 - Present

listanbul, Turkey

Currently working with Prof. Murat Çelik at Boğaziçi University Space Technologies Laboratory on Plasma Modelling. Additionally,
 I've extensively researched flight mechanics and created a 6DOF simulation for a plane using MATLAB/Simulink and Flight Gear.

Max Planck Institute for Intelligent Systems | Undergraduate Researcher

m June 2022 - Sep 2022

Stuttgart, Germany

 Worked on a magnetic actuation mechanism via MRI for guidewires to be used in medical applications. Supervised by Prof. Metin Sitti and Mehmet Efe Tiryaki

PAKKENS | Internship on Manufacturing

m Jan 2022 - Feb 2022

PBursa, Turkey

• Investigated different manufacturing methods ranging from machining to injection molding. Also contributed to R&D projects on flow simulation of a hydro block of a combi boiler.

BAYKAR Technologies | Mechanical Engineering Intern

m Aug 2021 - Sep 2021

♀ İstanbul, TURKEY

- · CFD Store Separation Analysis from an unmanned aircraft under the effect of propeller for various types of store geometries
- Research on Guidance, Navigation, and Control of a missile and basic programming applications of different Guidance Laws

Atölye Eğitim | Student Assistant

♥ İstanbul, TURKEY

 Conducted one-to-one physics and mathematics classes for senior high-school students preparing for national exams (LYS-YGS for entering college). Also gave problem sessions and prepared videos for solutions to the weekly exams