Emirhan Eser Gül

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EDUCATION

MSc Defense Technologies - Information Technologies GPA: 3.94/4.0	Istanbul, Turkey
Istanbul Technical University	2019 - 2022

Thesis: Development of a Comprehensive Simulation Software for Spacecraft Missions

BSc Astronautical Engineering GPA: 3.45/4.0	Istanbul, Turkey
Istanbul Technical University	2015 - 2019

Thesis: Scientific CubeSat Management System and Software

EXPERIENCE

Flight Dynamics & Software Engineer	October 2022 - Current
Leanspace	Strasbourg, France

- Lead the design and technical road-mapping for advanced flight dynamics solutions and software development, specializing in Java.
- Translate operational requirements into user needs and architectural frameworks, driving the implementation of ground system solutions. Develop custom solutions for diverse space operation use cases using various programming languages.
- Drive research and development for enhanced flight dynamics systems, exploring strategic partnerships and overseeing successful implementations.
- Organize and contribute to the success of the largest space hackathon. Represent the company at key events and conferences to strengthen its industry presence.

Spacecraft Software & Communications Engineer	January 2018 - October 2022
Space Systems Design and Testing Laboratory	Istanbul, Turkey

- Developed on-board software for small satellites and various payload systems, using C/C++ and RTOS.
- Managed ground stations, handling installation, maintenance, and operations. Utilized AX25, CCSDS, and CSP protocols. Designed link budgets and addressed various facets of satellite communication.
- Contributed in design, manufacture, assembly, and testing phases for two satellites that successfully flew and are still operational.
- Performed orbital analyses and mission planning, utilizing tools like STK, and implemented ADCS algorithms.
- Operated a thermal vacuum chamber and other sensitive equipment for satellite testing.
- Conducted research, published papers, shared expertise in the field, contributed to education and event organization.

Co-Founder, CEO	July 2021 - October 2022
Orbyte Aerospace Technologies	Istanbul, Turkey

- Submitted a project titled "Analysis & Simulation Software for Spacecraft Missions" to The Scientific and Technological Research Council of Turkey (Tübitak) and was awarded 200,000 TRY funding which aims to create a high-fidelity simulation environment to be used in the design and operation of space missions.
- Company management, marketing, accounting, project lead

Astronautical Engineer	November 2020 - May 2021
Novart Defense and Space Technologies	Istanbul, Turkey

- Designing and analyzing hybrid-propellant rockets, software for rocket avionic systems, and rocket flight simulations in C++ and JavaScript
- Aiding in the organization of and acting as a referee for avionic subsystem in National Teknofest Rocket Competition.

Senior Software Engineer	April 2020 - September 2020
Novart Defense and Space Technologies	Istanbul, Turkey

- Designing UI and developing frontend for rocket design & simulation software using JavaScript/TypeScript, CSS, and HTML.
- Developing functionality and backend for rocket design & simulation software using Nodejs and C++.
- Providing documentation & written knowledge transfer material, and maintaining the codebase.

Aircraft Systems Engineer

ATS Team (Aviation Technical Services)

October 2019 - January 2020

Istanbul, Turkey

- Developing solutions for technical, operational and maintenance problems.
- Ensuring all repairs and modifications are in compliance with company regulations and standards.
- Assisting in diagnosing and troubleshooting repairs and malfunctions.

SKILLS

C, C++, C#, Java, Python, JavaScript, HTML, CSS, Matlab, Orbital Mechanics, Spacecraft Communications

Git, Docker, Jira, AWS, FreeRTOS, AGI STK, NASA GMAT, Unity

PROJECTS

Analysis & Simulation Software for Spacecraft Missions   July 2021 - January 2023

- Funded by Tübitak for the establishment of Orbyte. A high-fidelity software for simulating orbits is being developed which will perform several analyses such as satellite lifetime, ground station passes, communication links and power system requirements. An AI-based orbital propagator is included for research purposes.

SharjahSat-1   June 2019 – January 2023

- A 3U CubeSat with optical and x-ray detector payloads developed by SSDTL. Developed on-board satellite software on Microsemi SmartFusion 2 SoC device using FreeRTOS, designed the RF system along with ground station software in C#. Performed orbital analysis for mission planning and optimizing communication links. The satellite was launched in 2023 and is operational.

Rocket Design & Simulation Software   April 2020 – January 2021

- A very detailed software that includes both 2D/3D design of a rocket system and its 6 degrees of freedom flight simulation. Single-handedly developed the software using a combination of JavaScript and C++. The software includes capabilities that sets it apart from its counterparts on the market, such as the ability to export 3D models and to design cross-sectioned fins with extreme details.

Edusat   Jan 2019 – December 2019

- An educational CubeSat model developed in SSDTL. Wrote whole system's and subsystems' software in C. Developed a Ground Station software in C#.

HONOURS AND AWARDS

SGAC - Chris Boshuizen Scholarship   2022

- Chosen by the Space Generation Advisory Council to attend the SGFF2023 as a delegate, including a scholarship of $3000 in order to hone and promote the voice of the next generation of space sector leaders on the topic of international space development.

Fulbright PhD Grant   2021

- Chosen by the Fulbright committee to receive a grant of $50,000 per year for 2022-23 and 2023-24 academic years for a PhD in USA.

AIAA - 3rd Place in Space Design Competition   2019

- Led a team of 10 undergraduate students to prepare a 100-page long report titled "Multi-Use Lunar Transportation Vehicle Utilizing Deep Space Gateway" that describes the conceptual design of a spacecraft that will carry cargo and humans between the Deep Space Gateway and the Moon, operating in a Near-Rectilinear Halo Orbit in L2 point of Earth-Moon system
- https://www.aiaa.org/get-involved/students-educators/Design-Competitions/2018-2019-design-competition-winning- reports

Student Entrepreneurship International Summit   November 2021

Pépite Île-de-France

- Won a place in the pitch contest and invited to pitch Orbyte Aerospace Technologies, in Sorbonne University Paris.

High Honor List   June 2019

- Honored by Istanbul Technical University during graduation.

PUBLICATIONS

Titan Mission Design of a Multi-Use Satellite Structure and Lander Plus Drone System IAC-23,A3,5,6,x77003	2023
On-board Software Development for a 3U CubeSat 11th Nano-satellite Symposium	2022

Titan Mission Design of a Multi-Use Satellite Structure and Lander Plus Drone System — 2023
IAC-23,A3,5,6,x77003

On-board Software Development for a 3U CubeSat — 2022
11th Nano-satellite Symposium

SharjahSat-1 Space-to-Ground Telecommunication Operations — 2022
IAC-22,B2,IP,5,69493

SAASST Ground Station: Satellite Tracking and Control for High Data Rates — 2020
IAC-20,B6,VP,6,x58579

Derin Uzay İstasyonu – Ay Yüzeyi Arası İnsan ve Kargo Taşıma Aracı Tasarımı
Deep Space Gateway – Lunar Surface Human and Cargo Transportation Vehicle Design — 2020
UHUK-2020-131

CERTIFICATES AND TEST RESULTS

- TOEFL iBT (11/2021) - 111/120
- IELTS Academic (10/2019) - 8/9
- GRE General (10/2019) - V: 157, Q: 170, AW: 3.0
- Japanese JLPT - N4 (07/2019) - 92/180
- Amateur Radio License Exam (2021) - 100/100
- STK Master Certification (03/2019) - AGI
- Embedded Systems Software and Development Environments (11/2019) - UC Boulder on Coursera
- Introduction to Aeronautical Engineering (11/2019) - DelftX on edX
- Space Mission Design and Operations (05/2019) - EPFLx
- Introduction to Systems Engineering (04/2019) - UNSW on Coursera
- Neural Networks and Deep Learning (03/2019) - DeepLearning.AI on Coursera
- Kinematics: Describing the Motion of Spacecraft (03/2019) - University of Colorado on Coursera
- Aerial Robotics (03/2019) - University of Pennsylvania on Coursera
- Introduction to Computational Thinking and Data Science (05/2018) - MITx on edX
- Introduction to Computer Science and Programming Using Python (02/2018) - MITx on edX

LANGUAGE SKILLS

English - Fluent (TOEFL iBT 111, IELTS Academic 8.0)	Turkish - Mother Tongue
Japanese - Intermediate (JLPT N4)	French - Limited Working Proficiency