Cem Güngör

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EDUCATION

Politecnico di Milano Milan, Italy
Master of Science in Mechanical Engineering
Mechatronics and Robotics Track *September 2022 - June 2025*
- CGPA: -

Izmir Institute of Technology İzmir, Turkey
Bachelor of Science in Mechanical Engineering *September 2017 - June 2022*
- 2020 Fall to 2022 Spring, Honor Roll
- CGPA: 3.12 / 4.00

WORK EXPERIENCE

Ulusoy Textile Company Adana, Turkey
Summer Internship *August - October 2021*
- Collaborated with a team of engineers to optimize textile centrifugal machines, resulting in a 5% increase in production capacity through dimensional optimization of the assembly using Solidworks
- Contributed to evaluating managerial decisions by organizing textile carriage carts, leading to improved workflow efficiency, although the improvement was not quantitatively measured.

KSG Machinery Manufacturing Company Adana, Turkey
Summer Internship *July - September 2020*
- Gained hands-on experience in turning, milling, and welding operations, learning key machining processes for manufacturing precision components.
- Manufactured essential components for Hitachi heavy equipment chassis, developing practical skills in machining and understanding production workflows.
- Assisted the quality control team in inspecting machined components, learning industry standards for quality assurance and defect reduction.
- Built strong relationships with workers, technicians, engineers, and management, gaining insight into the full operational hierarchy of a manufacturing company.

ACADEMIC PROJECTS

Design of an Automated High-Speed Emboss Machine
Functional Mechanical Design - Group Project *March 2024 - June 2024*
- The parametric relations of the mechanism is derived and improved by parameter optimization algorithm with gradient descent in MATLAB, yielding numerous valid solutions that would be difficult to calculate with standard methods.
- Performed dynamic analysis of the machinery using MSC Adams, identifying critical stress points and ensuring operational stability during high-speed embossing.
- Developed a CAD model of the manipulator in Solidworks, focusing on manufacturability, machinability, and aesthetic design to enhance visualization and functional performance.

Design and Trajectory Planning of a 3DoF Anthropomorphic Manipulator
Design of Robotic Systems - Group Project *October 2023 - December 2023*
- Developed a detailed CAD model of the 3DoF manipulator in Solidworks, conducting motion and strength studies based on material properties and manufacturing constraints, ensuring satisfying performance and durability.
- Conducted dynamic analysis and multibody simulation of the manipulator in Simulink, optimizing its trajectory for precision and applicability in real-world cases.

Structural Improvement of a Wind Turbine Tower
Bachelor Capstone Project *November 2021 - June 2022*

- Studied cost and service life improvements for the 500kW wind turbine tower, focusing on structural optimization to increase robustness and reduce maintenance costs.
- Performed static and dynamic analyses to optimize the wind turbine tower's structure, improving its load-bearing capacity and stability under varying operational conditions.
- Grants Received: 2209-B - Industry Oriented Research Project Support Programme for Undergraduate Students, Scientific and Technological Research Institution of Turkey (TÜBİTAK), May 2022.

Designing the Control Unit of an E-bike
Mechanical Engineering Laboratory Course - Personal Project *September 2021 - January 2022*

- Conducted a comprehensive literature survey and developed the engineering design of a pedal-assist electric bicycle, focusing on power efficiency and rider experience.
- Conceptualized and simulated a PI controller, PWM unit, electronic commutator, and driver circuits to ensure precise control and power management, with detailed documentation processes.
- Performed demonstrative experiments on a full-bridge driving circuit, testing its performance against the Simulink model, and validated its real-world feasibility and efficiency.

Trajectory Planning of a Planar RPR Manipulator
Dynamic Modelling and Control of Robots Course - Personal Project *September 2021 - January 2022*

- Developed a CAD model of the planar RPR manipulator in Solidworks, conducting motion studies to calculate the manipulator's trajectory for precision.
- Performed dynamic analysis and multibody simulation in Simulink, implementing an acceleration feedforward PD controller to enhance system responsiveness.

MOCAP & Dynamic Analysis of Daily Life Activities
Introduction to Biomechanics Course - Group Project *October 2021 - January 2022*

- Captured motion from various daily activities using Qualisys and Rokoko systems, performing dynamic analyses to quantitatively compare movement patterns, which enhanced the understanding of biomechanical aspects of human physical activities.

Market Analysis of Offshore Wind Turbines
Introduction to Renewable Energy Resources Course - Group Project *November 2021 - January 2022*

- Conducted and reported a comprehensive literature review on offshore wind turbines, identifying key trends and technological advancements in the industry.
- Investigated the advantages, disadvantages, and historical development of offshore wind energy and turbines, providing an in-depth analysis of current challenges and future opportunities in the sector.
- Analyzed the current state of offshore wind turbines with a focus on structural challenges, exploring the technological methods being pursued to enhance turbine design and efficiency.

Design of a Heat Recovery System for 600MW Coal Fired Powerplant
Heat Transfer Course - Interdisciplinary Group Project *October 2020 - February 2021*

- Provided a detailed overview of heat recovery systems, focusing on improving energy efficiency in coal-fired power plants through effective waste heat recovery.
- Performed stoichiometry calculations based on flue gas output to optimize the design for effective heat recovery and compliance with environmental standards.
- Designed shell and tube heat exchangers that comply with TEMA standards, calculating their efficiency under varying dimensional and inlet conditions using MATLAB, leading to improved thermal performance.

Conceptual Design of a 10MW Trigeneration Powerplant
Thermodynamics II Course - Group Project *February 2020 - July 2020*

- Developed the conceptual design of a 10MW combined cooling, heating, and power (CCHP) system, optimizing it based on inlet conditions to maximize energy efficiency and output.
- Compared the system's efficiency with similar CCHP systems, demonstrating an 11.2% improvement in thermal efficiency through design optimizations.

ADDITIONAL ACTIVITIES

IZTECH Anthropology Community
Board Member *September 2019 - June 2022*

- Worked on organizing the 1st evolutionary biology and anthropology workshop in IZTECH, (2019 October)
- Collaborated with the Social Responsibility Projects Coordinatorship and IZTECH Department of General Culture to host a series of online social responsibility seminars during the Covid-19 pandemic, (2020-2021).
- Coordinated a community development workshop focused on the Romani Communities of Turkey, in collaboration with the Social Responsibility Projects Coordinatorship and the Eurasian Romani Academic Network (ERAN), (2022 May).

ToRK2021 6th Turkish Robotics Conference
Attendee *July 2021*

- Attended lectures on industrial robotics and PhD presentations

UREV Urla Eğitim Vakfı (Education Foundation)
Volunteer *June - August 2021*

- Attended to social responsibility projects in Urla, Turkey.
- Volunteered in non-profit initiatives on behalf of UREV.

METU Robotics Society - 15th International Robotics Day
Attendee *September 2018*

- Attended lectures on electronic prototyping and programming

IZTECH IEEE Society Roboleague '18 - '19
Referee & Technical Crew Member *September 2018 & September 2019*

- Contributed on educational events aimed at cultivating a passion for robotics in youth

EU Comenius Programme
Exchange Student *February -March 2014*

- Joined the cultural exchange and education program hosted in Brno, Czech Republic.

LANGUAGES

English	Proficient (TOEFL IBT: 108/120, CEFR Level: C2)
Turkish	Native
Italian	Intermediate (CEFR Level: B1)

TECHNICAL STRENGTHS

Programming	C++, Matlab/Octave, Python, Julia
CAD & CAE	Solidworks, Autodesk Fusion 360, Autodesk Inventor, NX Siemens, ANSYS(Mechanical)
Other	Adobe Illustrator, GeoGebra, Simulink, QTM(Mocap), LaTeX

ACADEMIC INTERESTS

Machine Learning, Dynamic Systems, Control System Design, Functional Design, Robotics, Optimization

CAREER OBJECTIVES

- **Robotics and Automation Focus:** Mechanical engineering graduate with a strong foundation in robotics, control systems, and CAD design seeking a challenging role in robotics or automation. Eager to apply expertise in dynamic system modeling and mechatronics to develop cutting-edge automated solutions for industrial applications.
- **Research and Development (R&D) in Engineering:** Passionate about advancing engineering through research and development, I seek a role in R&D where I can use my expertise in mechatronics, robotics, and system control to innovate and contribute to groundbreaking technological solutions in the engineering field.

AFFILIATIONS

- TMMOB – Turkish chamber of mechanical engineers, member *2021 - Present*
- MESA - Milan Engineering Student Association, member *2022 - Present*

REFERENCES

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