

# Furkan Turan Koyun

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## Objective

Highly motivated candidate with a strong interdisciplinary background in Mechanical Engineering, Textile Engineering, and Data Science. Actively seeking a Ph.D. opportunity to contribute to cutting-edge research at the intersection of artificial intelligence and engineering. Eager to leverage my diverse academic foundation and research experience to develop intelligent, scalable, and sustainable solutions to complex real-world engineering challenges.

## Education

### Izmir Katip Çelebi University | Izmir, Turkey

2023 – Present

Master of Science in Software Engineering (Artificial Intelligence & Machine Learning), GPA 4.00/4.00

Thesis (ongoing): Prompt Engineering and DL Techniques for LLM-Based NLP Tasks: Applications in Mechanism Design

### Ege University | Izmir, Turkey

Bachelor of Science in Mechanical Engineering, Double Major, GPA 3.68/4.00 – First Class Honors

2019 – 2023

Bachelor of Science in Textile Engineering, Major, GPA 3.86/4.00 – First Class Honors

2018 – 2022

## Skills

**Applications & Tools:** SolidWorks, Abaqus, Ansys, MS Office, SAP, Unity, Power BI

**Programming Languages:** Python, C++, C#, SQL

**Libraries & Frameworks:** Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, PyTorch

**Lab & Experimental Tools:** CFD, product design, 3D printing, electrospinning, SEM, FTIR, membrane/drug delivery design

**Languages:** English CEFR B2+/C1 equivalent (DET: 110 Overall ≈ TOEFL iBT 81, 135 Writing)

## Experience

### Katip Celebi University | Izmir, Turkey

Spring 2024 – Present

#### Graduate Teaching Assistant / Computer & Software Engineering Department

- Conducting research on applying AI/ML and LLM-based chatbot solutions in industrial design and manufacturing, focusing on dataset collection, predictive modeling, and intelligent assistant applications for process optimization and fault detection.
- Teaching assistant in undergraduate and graduate data analysis and visualization courses, supporting lab sessions, grading, and helping students grasp core concepts in data preprocessing, exploratory analysis, and visualization techniques using tools like Python and Matplotlib.

### Sun Holding | Izmir, Turkey

Nov 2022 – Feb 2024

#### Process Improvement Engineer / Operational Excellence Department

A leading Turkish manufacturer specialized in innovative textile products and advanced production systems for global brands.

- Led SAP order processing management and application testing, providing technical support on Azure, which improved system reliability and reduced operational errors.
- Analyzed KPI and Balanced Scorecard data using machine learning and Excel to generate reports and predict upcoming performance periods, supporting strategic decision-making.
- Streamlined SAP workflows and management reporting through Robotic Process Automation (RPA) and SQL scripting, reducing manual errors and saving ~10 hours per week.
- Spearheaded digitalization and AI-driven sustainability projects, automating manual operations and successfully piloting Microsoft's Sustainability Manager program—first implementation in Turkey—resulting in significant process acceleration.
- Collaborated on Kaizen and Lean Six Sigma initiatives, identifying process bottlenecks and implementing continuous improvement measures that yielded measurable efficiency gains across multiple departments.

### Ekoten Fabrics | Izmir, Turkey

Jul 2021 - Sep 2021

#### Production Intern Engineer / Operational Excellence Department

A top European knit fabric manufacturer specializing in eco-friendly, high-performance materials.

- Conducted time studies on RAM machines and operator activities, analyzed key downtime causes, and developed actionable plans to enhance efficiency using Minitab, Python, and Microsoft Excel.
- Presented findings to the board, leading to a 12% increase in operational efficiency by addressing machine and operator inefficiencies.

**R&D Assistant / Research and Development Department**

The Scientific and Technological Research Council of Turkey is a government-funded research institution.

- Participated in national R&D projects for researching and developing new products by designing surfaces using SolidWorks and producing prototypes with 3D printing technology for experimental purposes.
- Completed 400 hours of laboratory electrospinning experiments to develop smart nanofiber membranes for clean water solutions, resulting in a publication in a prestigious international journal.
- Additionally, conducted an independent research project on Drug Delivery via PCL-Based Membranes. Designed and characterized PCL-based electrospun membranes for controlled drug release. Performed SEM, FTIR, and swelling/dissolution tests to evaluate fiber morphology and encapsulation efficiency.

**Ege University | Izmir, Turkey**

Spring 2020

**Undergraduate Teaching Assistant – Materials Science & Thermodynamics**

- Assisted in course delivery by preparing review questions, supporting class sessions, grading, and coordinating materials.

**Publications**

1. **Koyun, F. T.**, Çalışkan, T., Onan, A., Korkut, S. Ö., Revolutionizing Healthcare: The Role of Generative AI and Large Language Model Chatbots in Medical Applications (work-in progress)
2. **Koyun, F. T.**, Sabur, S., Başal, G., & Günerhan, H. (2024). Innovative 3D-printed surfaces for efficient water harvesting from air. *International Journal of Clothing Science and Technology*. <https://doi.org/10.1108/IJCST-02-2024-0050>
3. **Koyun, F. T.**, Başal, G., (2023). 3D Printed Smart Surfaces for Water Harvesting from Air, *International Congress on Sustainability and Technological Developments in Textiles*
4. **Oral, N.**, Koyun, F. T., (2021), Nanocomposite Structure for Oil/Water Separation, *International Ege Composite Materials Symposium*

**Leadership and Activities****Wellbook – Mobile Psychology App (Founder – Contributor)**

Mar 2024 – May 2025

Explored the integration of LLM-powered chatbot features with psychologists to enhance personalization; conducted software testing, and contributed to feature planning for a mental health app now published on iOS and Android.

**Apparel Design Venture – T-shirt Line (Founder)**

Feb 2024 - Present

Launched a user-driven apparel project to explore product–market fit; led fabric sourcing, iterative product design, and direct-to-customer sales, achieving 40+ units sold in initial release with positive feedback.

**International Efficiency Challenge Electric Vehicle Races**

Sep 2021 - Feb 2022

Designed an electromobile using SolidWorks and selected a high-strength, lightweight material for optimal performance. Collaborated with Bosch engineers, authored the report, and presented design and performance results.

**E.U. Thermoelectric Systems Research Group**

May 2021 - Jun 2022

Conducted CFD and thermodynamic studies for Turkey's first domestically developed Yanko suction device in the medical field, supporting prototyping through 3D printing and contributing to early experimental design.

**Trainings and Certificates****Miuul Data Scientist Bootcamp**

Jun 2023 - Sep 2023

Completed a hands-on program on Python, CRM analytics, recommendation systems, feature engineering, machine learning, and SQL, focused on real-world cases.

**Honors and Awards****High Honor Roll**

2022

Graduated at the top of the faculty with First Class Honors in both Textile Engineering and Mechanical Engineering.

**Best Bachelor Thesis Award**

2022

Awarded for the thesis on oil and water separation using 3D printing technology.

**Outstanding Success Scholarship**

2019-2022

Awarded by the Turkish Education Assn. to students demonstrating exceptional vision, character, and academic performance.