

UMUT SERDAR CIVICI

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ABOUT

I am a Ph.D. student at Harvard John A. Paulson School of Engineering and Applied Sciences, specializing in wearable ultrasound sensors, materials science, and experimental research. My work aims to advance soft wearable technologies for biomedical applications, exploring innovative materials and designs that enhance human interaction with technology. My focus is on integrating materials science with experimental techniques to develop transformative healthcare solutions.

EDUCATION

Harvard University, Cambridge/United States of America *Sep 2023 - Present*

PhD Student

Materials Science and Mechanical Engineering

Istanbul Technical University, Istanbul/TURKEY *Sep 2017 - Aug 2020*

Master of Science, GPA: 3.27/4.00

Department of Mechanical Engineering, Minor: Mechanical Design

Thesis subject: Vacuum Provider Soft Robotic Actuator

Delft University of Technology, Delft/NETHERLANDS *Sep 2018 - Feb 2019*

Master of Science, Erasmus (Exchange) Program

Department of Mechanical Engineering

Erasmus+ Grant

Yildiz Technical University, Istanbul/TURKEY *Sep 2011 - Jan 2017*

Bachelor of Science

Department of Mechanical Engineering, Minor: Material Science and Manufacturing Division

Otto-Von Guericke University, Magdeburg/GERMANY *Sep 2015 - Feb 2016*

Bachelor of Science, Erasmus (Exchange) Program

Department of Mechanical Engineering

Erasmus+ Grant

EXPERIENCE

Harvard University/United States, Cambridge Massachusetts *Oct 2022 - Sep 2023*

Research Fellow

- Working as a full-time research fellow in the Harvard John A. Paulson School of Engineering and Applied Sciences, Biodesign Lab. Working on the design, prototyping, and evaluation of soft wearable robots.

Carnegie Mellon University/United States, Pittsburgh Pennsylvania *Sept 2021 - Oct 2022*

Research Scholar

- Worked as a full-time researcher in the School of Computer Science, Human-Computer-Interaction Institute, Morphing Matter Lab. Participated in the robotics research project as a co-first author (shared) as well as led my own project in wearable shock-absorbing metamaterials.

FEV Turkey *June 2019 - Sept 2021*

Mechanical Design Engineer

- Mechanical Design Engineer for a high-speed V20 diesel marine engine project, responsible for gas exchange and water-cooled exhaust manifold design, as well as cast components like crankcase covers, brackets, and air ducts. Involved from concept to detailed design using Siemens NX, CATIA, and PTC Creo.
- Worked in McLaren hybrid engine development project, designed casted engine components in the valve train.

- Worked at a refrigerator research and development department, designing and optimizing plastic parts for the top panel housing to reduce costs. Used Siemens NX for CAD design and 3D printing for rapid prototyping.

- Machine shop internship; examination of machining, welding, and metal forming processes in the workshop as well as preparation of 3D models and 2D drawings of manufactured parts.

- Private tutor, teaching Mathematics, Geometry and Physics lectures to high school students.

SKILLS & LANGUAGES

Research & Engineering; Electromechanical acoustic instrumentation, Composite material modeling for acoustics applications, Experimental research, Signal processing, Micro-fabrication, Mechanical design & 3D modeling, Rapid prototyping

Software & Modeling; MATLAB, Python/Micro-Python, Mathematica

Design & Simulation; Siemens NX, Solidworks, CATIA, PTC Creo, ANSYS (Structural), ABAQUS, Hyperworks

Languages; Turkish, Native & English, Professional Proficiency, TOEFL IBT 90

PUBLICATIONS

Estimation of joint torque in Dynamic Activities Using Wearable A-mode ultrasound

Jin, Y. et al. (2024) 'Estimation of joint torque in Dynamic Activities Using Wearable A-mode ultrasound', Nature Communications, 15(1). doi:10.1038/s41467-024-50038-0.

A portable inflatable soft wearable robot to assist the shoulder during industrial work

Zhou, Y.M. et al. (2024) 'A portable inflatable soft wearable robot to assist the shoulder during industrial work', Science Robotics, 9(91). doi:10.1126/scirobotics.adi2377.

RevLock: A Reversible Self-Locking Mechanism Driven by Linear Actuators for Foldable Robots and Systems

Minori, A.F. et al. (2023) 'Revlock: A reversible self-locking mechanism driven by linear actuators for foldable robots and systems', IEEE Robotics and Automation Letters, 8(11), pp. 7432–7439. doi:10.1109/lra.2023.3315215.

Soft Robot Motion under Surface Texture Effects, Journal Paper

Civici, U. and Parlar, Z. "Soft Robot Motion under Surface Texture Effects." Emerging Materials Research 9.1 (2020): 1-6. doi number: 10.1680/jemmr.19.00072

Locomotion Control of Soft Robot with Surface Texture, Conference Paper

Conference Proceeding, ICCESN 2018 Antalya/TURKEY, research project about surface texture of tribological effects on soft robotic system, Advisor: Asst. Prof. Dr. Zeynep Parlar, Istanbul Technical University.

REFERENCES

Assoc. Prof. Orhan Cakir at Yildiz Technical University, Thesis Advisor

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Asst. Prof. Lining Yao at Carnegie Mellon University, Research Scholar Advisor

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