YUNUS EMRE ARABACI

Email: YSE19@outlook.com.tr | **Phone:** +90 538 329 6124 | **Location:** İzmir, Turkey | **LinkedIn** | **Website**

PROFESSIONAL SUMMARY

Mechanical Engineer specializing in heat transfer, thermal management, and heat exchanger design with a strong foundation in CFD and thermodynamics. Experienced in simplifying 3D thermal models into efficient 2D simulations for industrial cooling systems. Through TÜBİTAK projects and industry internships, I have gained hands-on experience in cross-functional R&D collaboration. I aim to further develop and apply my knowledge and skills in defense, aerospace, and advanced cooling system technologies.

EDUCATION

Bachelor of Science in Mechanical Engineering | 2021 – 2025
Dokuz Eylül University, İzmir, Turkey | **GPA: 3.3/4.0**
• Ranked 3rd in Department | Honor Student | Focus: Heat Transfer, Fluid Mechanics, Thermodynamics

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TECHNICAL SKILLS

Engineering Software: ANSYS Fluent (CFD), SolidWorks (CAD), MATLAB, MS Excel (Data Analysis & Reporting)

Core Competencies: Heat Exchanger Design, Thermal Analysis, Computational Fluid Dynamics, Heat Transfer, Thermodynamics, Fluid Mechanics, Phase Change Materials, Cooling System Optimization, 3D to 2D Model Reduction

Languages: English (YÖKDİL: 78.75/100 - Proficient), Turkish (Native)

PROFESSIONAL EXPERIENCE

TÜBİTAK Project Fellow | September 2024 – March 2025
TÜBİTAK 1505 Project No. 5220120, İzmir, Turkey

• Reduced 3D CFD models of cooling systems to efficient 2D simulations, achieving up to 15× faster solution times with acceptable accuracy deviations for heat exchanger and refrigeration applications.

• Performed advanced thermal analysis using ANSYS Fluent to optimize heat transfer performance in deep freezer cabinets with phase change materials integration

• Developed 2.5D transient CFD models for thermal management systems, contributing to improved food safety standards

TÜBİTAK Intern Researcher | February 2024 – August 2024
TÜBİTAK 2247-C Program, İzmir, Turkey

• Conducted experimental and numerical investigations on phase change material applications for thermal energy storage in refrigeration systems

• Utilized MATLAB and ANSYS Fluent for heat transfer modeling and data analysis, improving thermal performance metrics

• Collaborated with cross-functional research team to present findings at 16th National HVAC Engineering Congress

Production Engineering Intern | July 2024 – August 2024
Beko Corporate, Manisa, Turkey

• Executed SMED process improvement project on refrigerator production lines, creating Excel simulation model to predict output based on process parameters

• Analyzed manufacturing processes for cooling machines including heat exchanger assembly and refrigeration cycles

Manufacturing Engineering Intern | September 2023
HABAŞ Industrial and Medical Gases, İzmir, Turkey

• Applied thermal management principles to continuous casting operations, observing heat transfer optimization in metallurgical processes

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RESEARCH & PRESENTATIONS

Conference Presentation: "Reduced CFD Modeling of a Deep Freezer Cabinet" – 16th National HVAC Engineering Congress

Project Lead: TÜBİTAK 2209B – Effect of Phase Change Materials in Deep Freezer Cabinet Using 2.5D Transient CFD Model

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LEADERSHIP & ACTIVITIES

Student Committee Member – DEU Energy Application and Research Center | September 2024 – June 2025
Organized 21st Exergy Summer School and energy-focused academic events promoting thermal engineering education