

Burak KILIÇ

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EXPERIENCE

- **FMV Isik University** 06/2018 - present
Research Assistant Istanbul
 - Assisted in the research of the granted BAP project: Development of an economical and innovative joining concept for hybrid materials that does not require filler material.
 - Managed Materials Science Laboratory, Measurements and Instrumentation, and Mechanical Engineering Laboratory courses. Supervised students in the laboratory, and graded laboratory reports.
 - Assisted in the development of new course materials and assignments by writing and revising course materials, and developing new assignments and assessments.
 - Also taught and supervised students in the Machine Design and Engineering Drawing lab sections.
- **Turkish Standards Institution** 06/2017 - 01/2019
Inspector Istanbul
 - Planned and executed inspections in accordance with instructions provided by TSE (Turkish Standards Institution), harmonized standards (such as EN 81-1, EN 81-20, EN 81-70, etc.), and applicable legal regulations.
 - Conducted thorough inspections to assess the safety, functionality, and compliance of the inspected equipment or systems.
 - Documented inspection findings and prepared comprehensive reports.
- **Universal Certification** 02/2016 - 07/2016
Welding Engineer Istanbul
 - Prepared and approved qualification documents, including Welding Procedure Specifications (WPS), Procedure Qualification Records (PQR), and Welder's Test Certificates.
 - Worked extensively with various welding codes and standards, such as AWS D1.1, EN 1090, and ASME BPVC.
 - Conducted inspections and assessments to verify compliance with welding standards and codes.
- **Merberk Engineering** 09/2015 - 02/2016
R&D Engineer Istanbul
 - Involved in an R&D project to create a 3D printer and subsequently a unique 3D Metal Printer.
 - Successfully completed the development of the 3D printer, but the project was discontinued before creating the metal 3D printer due to a lack of grants or funding.
- **Mast Metal Steel Construction** 09/2014 - 09/2015
Quality Control Engineer Kocaeli
 - Contributed to the establishment of the Quality Management System (QMS) at Mast Metal Steel Construction as the Management Representative.
 - Conducted inspections after welding, demonstrating a strong interest in quality control.
 - Worked closely with customers, primarily from IHI Corp., organizing inspections and planning NDT procedures.
 - Delivered accurate quality records in accordance with Inspection and Test Plans (ITPs).
 - Upheld high-quality standards and efficiently managed the quality control process throughout the tenure.

EDUCATION

- **Istanbul Technical University** 2022 - present
Ph.D. Degree in Mechanical Engineering CGPA: 3.11/4.00
Relevant coursework: Computer Vision, Medical Image Computing, Big Data Technologies and Applications
- **Istanbul Technical University** 2016 - 2022
M.Sc. Degree in Materials and Manufacture GPA: 3.13/4.00
Thesis topic: Investigation of joining metals and fiber reinforced thermoplastic composites by hot pressing method
- **Gedik Educational Foundation** 2014 - 2015
IWE (also EWE) Degree certified by the International Institute of Welding (IIW) -
- **Bulent Ecevit University** 2008 - 2014
B.Sc. Degree in Mechanical Engineering GPA: 2.48/4.00







PROJECTS

- **SIPA: Smart Integrated Plant Assistant** 2025 (ongoing)
Personal Project — Repository 
 - Developing an IoT-based precision agriculture system using ESP32 microcontrollers and environmental sensors (YL-69 soil moisture, DHT22 temperature/humidity, BH1750 light intensity, DS3231 RTC) to monitor conditions, enable automated irrigation, and track plant growth via periodic camera captures (ESP32-CAM).
 - Implementing real-time data streaming with MQTT/Apache Kafka, storing historical measurements in PostgreSQL, and visualizing trends through Grafana dashboards for data-driven agricultural insights.
 - Designing an alert mechanism to notify users of critical environmental changes, improving plant health and optimizing resource usage in alignment with precision farming principles.
- **MARS: Marble Analysis and Robotic Slicing** 2025 (ongoing)
Personal Project
 - Developing an AI-powered marble inspection pipeline integrating a fixed imaging setup (industrial camera, lens, conveyor, lighting system) to preprocess, calibrate, and extract dimensionally accurate images for downstream analysis.
 - Implementing deep learning models (UNet, DeepLabV3, ResNet, EfficientNet) for binary defect segmentation, multi-class quality classification, and automated cutting plan generation with minimal waste using OR-Tools.
 - Deploying the system with real-time monitoring, feedback-based model updates, and a user interface built on FastAPI, Docker, and Streamlit for industrial integration.
- **MOOZE** 2024
Personal Project — Repository 
 - MOOZE is an open-source CLI app that interacts with OpenAI's API to create and manage an AI assistant.
 - The assistant is designed to respond in a user-specified style and help with questions related to a provided document(s).
 - Key features include functionalities for managing files, vector stores, and threads to facilitate interactions with the AI assistant.
- **ENGR4450 - Applied Artificial Intelligence Course Notes** 2024
Creator — Repository 
 - ENGR4450 - Applied Artificial Intelligence (AI), a course offered at Işık University.
 - The repo contains six Jupyter notebooks (tutorials) prepared by me.
- **Yet Another Earthquake Project (YAEP) by Team EGAL** 2023
Project Coordinator — Repository  / Paper 
 - Tools & frameworks used: Apache NiFi, Apache Kafka, Apache Spark, AWS S3, Elasticsearch, Kibana
 - Coordinated an end-to-end project focused on earthquake visualization and correlation analysis with electric field data. Led the team in utilizing a suite of Big Data Tools to seamlessly acquire, integrate, preprocess, analyze, and visualize the data. Leveraged real-time data streaming, advanced analytics, and interactive visualization techniques to uncover significant relationships between earthquakes and electric field data.
- **Segmentation Based on Swin-Unet** 2023
Personal Project — Repository  / Paper 
 - Tools & frameworks used: PyTorch, Swin-Unet, SimpleITK
 - Studied automated medical image segmentation using the Swin-Unet model. Achieved accurate results through data preprocessing, training, and GPU acceleration.
- **Age Regression from Brain MRI Images** 2023
Personal Project — Repository  / Paper 
 - Tools & frameworks used: Scikit-learn, SimpleITK
 - Compared various regression models, this project aims to accurately estimate patients' ages based on their brain MRI images, providing valuable insights into brain development, aging processes, age-related pathologies, and aiding in the early detection of neurodegenerative disorders in medical research and practice.
- **Weld Defect Detection Using a Small Dataset with U-Net** 2022
Personal Project — Repository  / Paper 
 - Tools & frameworks used: PyTorch, U-Net
 - Utilized the GDXray dataset, specifically for weld X-ray images, and implemented the U-Net architecture.
- **Flaw Detection in Radiographic Weld Images Using Morphological Approach** 2016
Personal Project - Paper 
 - Tools & frameworks used: MATLAB, Image Processing Toolbox
 - Implemented an algorithm inspired by RS Anand and P Kumar's research for flaw detection in radiographic weld images using a morphological approach. It aimed to provide an automated and robust method for flaw detection.

TECHNICAL SKILLS AND INTERESTS

- **Languages:** Turkish (Native), English (Advanced)
- **Developer Tools:** Git, Docker, AWS, Linux, Apache NiFi, Apache Kafka, Apache Spark, Elasticsearch, Kibana
- **Frameworks:** PyTorch, TensorFlow, Keras, Darknet (YOLO), OpenCV, Scikit-Learn
- **Licenses:** A+B Class Driver, PADI Advanced Open Water Diver (AOWD), CMAS ** Diver, FAI Beginner Pilot
- **Area of Interest:** Computer Vision, Medical Images, LLMs, Nondestructive Evaluation, Big Data Applications

CERTIFICATES

- **Google Developers Machine Learning Bootcamp**  (Google - inzva) *2023*
- **TensorFlow Developer Certificate**  (Google) *2023*
- **Certified Associate in Project Management (CAPM) preparation training**  (PMI TR - ITU) *2023*
- **Introduction to Big Data with Spark and Hadoop**  (IBM, Coursera) *2023*
- **Introduction to Apache NiFi | Cloudera DataFlow - HDF 2.0**  (Udemy) *2023*
- **Deep Learning Study Group**  (inzva) *2020*
- **Elevator Inspector Personnel** (Turkish Standards Institution) *2017*
- **Internal Auditor** (KYS Consulting) *2014*
- **IMS (ISO 9001:2008, ISO 14001:2004, and OHSAS 18001)** (KYS Consulting) *2014*