

# Burak KILIÇ

AI Researcher, Ph.D. Student  
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## EXPERIENCE


- FMV Isik University** 06/2018 - present  
*Research Assistant* Istanbul
  - Assisted in the research of a TÜBİTAK-granted 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: 3.17/4.00  
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

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- **SIPA: Smart Integrated Plant Assistant** 2024 (ongoing)  
*Personal Project* — Repository 
  - Tools & frameworks used: ESP32, ESP32-CAM, YL-69, DHT22, BH1750, DS3231, MQTT / Apache Kafka, PostgreSQL, Grafana, Python, FastAPI
  - Developing an IoT-based plant monitoring and automation system to track soil moisture, temperature, humidity, and light intensity, enabling automated irrigation and visual growth tracking through periodic camera captures.
  - Implementing real-time data streaming and dashboard visualization with Grafana, integrating alert notifications, and storing timestamped sensor data for historical analysis.
- **An Earthquake Research Project** 2023 (ongoing)  
*Team Member*
  - Tools & frameworks used: Apache NiFi, Apache Spark, AWS S3, SeisBench
  - Currently involved in a research project within a scientific research group, utilizing Big Data Tools and the SeisBench framework in the context of Istanbul.
- **Brain Tumor Segmentation (BraTS Challenge Participation)** 2023 (ongoing)  
*Personal Project* — Information 
  - Tools & frameworks used: PyTorch, nnUNet, SimpleITK
  - Participated in the International BraTS challenge, utilizing nnUNet to develop a model for accurate brain tumor segmentation in multi-modal MRI data.
- **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

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- **Languages:** Turkish (Native), English (Advanced)
- **Developer Tools:** Git, 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 Image Computing, Nondestructive Evaluation, Big Data Applications

## CERTIFICATES

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- **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