Burak KILIÇ

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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
- **Gebze Anatolian High School** *2003 - 2007*
  High School Degree Grade: 74.98/100

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.
  – 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).
- **Betek Paint and Chemicals Inc. (Filli Boya - Fawori - Alligator - Alsecco)** *2014*
  Intern - Involved in the SEVESO project. Prepared P&IDs in the field, documenting equipment and processes. Kocaeli
- **A.S.M. Treatment Systems** *2012*
  Intern - Gained hands-on experience in various manufacturing processes including machining and welding. Kocaeli
- **Kastamonu Integrated Wood Industry** *2011*
  Intern - Gained practical knowledge and experience in maintenance operations, repair protocols, and troubleshooting. Kocaeli

Projects

- **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 Challange 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
  – The project involved conducting a kinematic analysis of a quadcopter's cruising and take-off movements. Using MSC ADAMS software, equations were derived and implemented in MATLAB for visualization.

- **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.

- **Kinematic Analysis and Design of a Quadcopter** *2014*

  Personal Project

  – Tools & frameworks used: MSC ADAMS, MATLAB
  – The project involved conducting a kinematic analysis of a quadcopter's cruising and take-off movements. Using MSC ADAMS software, equations were derived and implemented in MATLAB for visualization.

Technical Skills and Interests

Languages: Turkish (Native), English (Advanced)
Developer Tools: 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

- **Google Developers Machine Learning Bootcamp 2023** (Google - inzva) *ongoing*
- **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*