europass

# Volkan Okbay

**Place of birth:** Ankara, Turkey **Email address:** volkanokbay@outlook.com

**Email address:** volkbay@pec.it

**LinkedIn:** volkbay

**Website:** http://www.github.com/volkbay

## ABOUT ME

My research interests lie at the intersection of computer vision and machine learning, with a focus on exploring the potential for visual data to inform decision-making and other tasks in various domains, including robotics, the arts, natural sciences, and digital humanities. As a researcher and practitioner, my mission is to investigate novel solutions to complex problems in these fields, using both learning-based and hand-crafted algorithms. Ultimately, my vision is to contribute to the development of AI that is inspired by nature and centered on human-AI interaction, rather than being dominated by AI. I am seeking academic environments that value creativity, interdisciplinary collaboration, and continual learning, and that provide opportunities to share my knowledge with others through teaching and social responsibility. I am also open to joint institute programs, fieldwork, or mobility.

## WORK EXPERIENCE

### *Accademia di Belle Arti di Roma [ABAROMA]* – Rome, Italy

**Software Expert**

[ 23/10/2025 – 28/02/2026 ]

My role in the **Enacting Artistic Research (EAR)** project is within the **°'°Kobi** platform (WP3). Our objective is to research, implement, and integrate image processing capabilities into a core chatbot structure where we control the knowledge space. To achieve this, we aim to interpret selected artists' paintings using both conventional image processing and modern neural embedding techniques.

### *METU CENTER FOR IMAGE ANALYSIS [OGAM]* – Ankara, Turkey

**Website:** http://ogam.metu.edu.tr/en/

**Researcher**

[ 01/01/2023 – 24/10/2025 ]

While applying to PhD programs, I participate in two projects to improve my skills and academic visibility. I am working on "SLAM with event-based vision" with Prof. Aydın Alatan as a full-time researcher at OGAM. Under the supervision of Prof. Gözde Akar, I study "Context-based segmentation and understanding of meibomian glands", in collaboration with MDs.

- Diribaş, Ö., **Okbay, V.,** Akça, O., Bilgiç, Ö. M., Yeşilırmak, N., & Bozdağı Akar, G., (2024). Automated Meibomian Gland and Eyelid Segmentation. SIU 2024 IEEE THE 32nd CONFERENCE ON SIGNAL PROCESSING AND COMMUNICATIONS APPLICATIONS (pp.5-6). Mersin, Turkey DOI: https://doi.org/10.1109/SIU61531.2024.10600888
- Yesilirmak, N., **Okbay, V.,** Yesilirmak, Y., Bilgic, O. M., Diribas, O., Akca, O., & Akar, G. B. (2025). Evaluation of meibomian gland dysfunction with deep learning model considering different datasets and gland morphology. Computers in Biology and Medicine, 195, 110679. DOI: https://doi.org/10.1016/j.compbiomed.2025.110679

### *MAXIM-ANALOG DEVICES* – Istanbul, Turkey

**Website:** https://www.analog.com

### Research Intern

[ 01/08/2022 – 05/11/2022 ]

I worked in an R&D group targeting an edge-AI system [MAX78000FTHR] that involves a CNN accelerator module. We have implemented a TCN with custom PyTorch layers for video action segmentation, using samples from the Kinetics400 dataset. *Supervisor:* Dr. O. Erman Okman

***METU & THALES FRANCE*** – Ankara, Turkey

**Website:** https://www.thalesgroup.com

### Graduate Researcher

[ 01/10/2018 – 01/08/2019 ]

Signal Processing Library Optimization, Embedded Systems, C++, Unix, and Assembly with Neon. We optimized basic signal processing functions for a specific Texas Instruments hardware, equipped with ARM processors. We were responsible for highly vectorized FFT, IFFT, multiplication, and dot product with the help of NEON co-processor, in later ARM architectures. *Supervisor:* Philippe Le Gall

***ASELSAN*** – Ankara, Turkey

**Website:** https://www.aselsan.com | **Name of unit or department:** Avionics Hardware Dep.

### Hardware Design Engineer

[ 01/04/2015 – 06/02/2018 ]

Avionics Hardware Design Department, Defence Systems, FPGA Software Design and Testing (communication protocols and project-specific algorithms). I contributed to several projects as an FPGA software designer in a leading defense systems company (conforming to DO standards and code coverage). Half of the workload was communication protocol programming, such as UART, SDLC, I2C, one-wire, and many others. Another part was optimizing basic mathematical and signal processing functions, from basic division to complex FFTs. A last aspect was to implement project-specific algorithms, i.e., gathering big data stream or physics-related data analysis from the fiber optic hardware of an IMU.

## EDUCATION AND TRAINING

### Master of Science - Electrical-Electronics Engineering

***MIDDLE EAST TECHNICAL UNIVERSITY*** [ 14/09/2015 – 05/10/2018 ]

**City:** Ankara | **Country:** Turkey | **Website:** www.metu.edu.tr | **Field(s) of study:** Computer Science | **Final grade:** 3.71 | **Level in EQF:** EQF level 7 | **Type of credits:** ECTS | **Number of credits:** 120 | **Thesis:** Automated Image Processing for Scratch Detection on Specular Surfaces

- **Programme Language:** 100% in English
- **CGPA:** 3.71/4.00 (Computer Science Option) Robotics and computer vision-related courses were taken. Supported by a scholarship from TUBITAK. (https://www.tubitak.gov.tr/en)
- **Thesis: Okbay, V.,** Akar, G., & Yaman, U., (2018). Automated Image Processing for Scratch Detection on Specular Surfaces. International Conference and Exhibition on Digital Transformation and Smart Systems, Ankara, Turkey. Presented at DTSS 2018, Ankara, Turkey. (https://dtss.metu.edu.tr) Supervisor: Prof. Gözde AKAR (https://avesis.metu.edu.tr/bozdagi)
- **Project:** Scratch Detection System with Image Processing and Deep Learning on Raspberry Pi and Nvidia JETSON (Python, Tensorflow, Unix, MATLAB). Our industry partner was Arçelik Dishwasher Plant, Ankara.
- **URL:**
    - https://open.metu.edu.tr/handle/11511/27527
    - http://etd.lib.metu.edu.tr/upload/12622717/index.pdf

### Bachelor of Science - Electrical-Electronics Engineering

***MIDDLE EAST TECHNICAL UNIVERSITY*** [ 31/08/2009 – 13/06/2015 ]

**City:** Ankara | **Country:** Turkey | **Website:** www.metu.edu.tr | **Field(s) of study:** Computer Science | **Final grade:** 3.74 | **Level in EQF:** EQF level 6 | **Type of credits:** ECTS | **Number of credits:** 240

- **Programme Language:** 100% in English + 1-year prep. school
- **Capstone:** 3-Ball Pool Playing Robot: My part was to spot ball locations and calculate hitting angles.
- **Minor:** in Psychology (CGPA: 3.29/4.00)
- **Erasmus:** Ulm University (Germany) - Summer Semester'14

## LANGUAGE SKILLS

**Mother tongue(s):** Turkish

**Other language(s):**

| English | German |
|---|---|
| **LISTENING** C2 **READING** C2 **WRITING** C2 | **LISTENING** A2 **READING** A2 **WRITING** A2 |
| **SPOKEN PRODUCTION** C2 **SPOKEN INTERACTION** C2 | **SPOKEN PRODUCTION** A2 **SPOKEN INTERACTION** A2 |

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*

## SKILLS

### Programming

Python (computer programming) / C++ / Bash - Shell / Verilog-HDL & VHDL / Assembly (computer programming) / Pytorch,Tensorflow / MATLAB / ROS(robot operating system) / Frameworks & Libraries: OpenCV, Sci-kit learn, NumPy, Pandas, SciPy, Matplotlib. / Text processing (Word, LaTeX) / MLOps / Jupyter/Anaconda / Git / Docker / use scripting programming / manage ICT virtualisation environments / tools for software configuration management

### Research Interests

Digital Humanities / computer vision / machine learning / robotics / FPGA based Digital Design/Development and Testing

### Soft Skills

work as a team / create solutions to problems / think creatively

### Other

Blender / Inkscape / graphics editor software / Keycreator (CAD) / NI-MultiSim / Circuit design and simulation: LTspice

## CERTIFICATES

### List of Certification

Please check my LinkedIn certifications page for the latest information.

## HOBBIES AND INTERESTS

### Activities

- Volunteer Project Assistant in Institute for Future Research (GAE) - Teaching, organizations, PR, foresight projects. (https://en.gelecek.org.tr/)
- METU Fine Arts Student (Classical Guitar, Glass, Drums), in a rock music band performing (vocals, guitars)
- Ice Hockey Player (in University Squad, Licensed) – Ice Sports Student Club Member

- METU Board of European Students of Technology Member – Summer Course 2018 Marketing Coordinator (https://www.best.eu.org/)
- Volunteer in IBG Workcamps (Aug 2010, Wolframs-Eschenbach, Germany)
- My interests are solving puzzles, traveling (camping and cultural), pc gaming, playing guitar (classical & electro) and other instruments (drums, vocal, keys), robotics, scale modeling, graphical logo design, fabric painting, aquarium hobby, darts (in a team).