

MURAT BILGEHAN ERTAN

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Education

Vrije Universiteit Amsterdam

2023 - Mar 2025

MSc in Computer Security - Cum laude distinction

Amsterdam, Netherlands. cGPA: 9.1/10.0

Sabanci University

2019 - 2023

BSc in Computer Science and Engineering

Istanbul, Turkey. cGPA: 3.59/4.0

Work Experience

Centrum Wiskunde & Informatica (CWI)

May 2025 – Present

PhD Student in Security & Machine Learning

Amsterdam, Netherlands

- Working under the supervision of Prof. Marten van Dijk.

Nov 2024 – May 2025

Associate Researcher

Amsterdam, Netherlands

- Working under the supervision of Prof. Marten van Dijk, studying various Machine Learning and Security topics.

PRODAFT

Aug 2022 – May 2025

Security Researcher & Developer

Netherlands, EC3 partner of EUROPOL

- Developing autonomous frameworks for threat intelligence analysis using C++, Python, Golang, TypeScript, RabbitMQ, Celery, and MongoDB, while also leveraging machine learning to enhance system capabilities and accuracy.

Vrije Universiteit Amsterdam

Nov 2023 - Jan 2024

Teaching Assistant

Amsterdam, Netherlands

- Worked as a teaching assistant during the course of Secure Programming in Vrije Universiteit Amsterdam.

KocLab, Sabanci University

Mar 2022 – Feb 2023

Research Assistant

Istanbul, Turkey

- Worked under Prof. Cetin Kaya Koc focusing on Reinforcement Learning, Cyber-Physical Security, and Cryptography.

Turkcell

Jun 2021 – Aug 2021

Security Management & Architecture Intern

Istanbul, Turkey

- Researched HTTP Secure Headers, Password Policies, Session Management, and JWT Token Security under the supervision of Necati Ersen Siseci.

Publications

Beyond Anonymization: Object Scrubbing for Privacy-Preserving 2D and 3D Vision

2024 – March 2025

- First author of a novel object removal framework integrating instance segmentation and generative inpainting for privacy-preserving dataset obfuscation.
- Demonstrated the impact of object scrubbing on 2D COCO-based object detection and NeRF-based 3D reconstruction.
- Submitted as my Master's thesis under the supervision of Prof. Marten van Dijk; awarded a final grade of 10/10.
- Submitted to ICCV 2025, it's under peer review. <https://arxiv.org/abs/2504.16557>

A Biologically Inspired Filter Significance Assessment Method for Model Explanation

2025

- Co-author of an XAI study leveraging SSVEP-based filter selection to enhance CNN interpretability.
- Implemented a biologically inspired method to rank convolutional filters and improve Grad-CAM explanation focus.
- Peer-reviewed paper accepted for publication and presentation at the XAI Conference 2025.

Unveiling Cyber Threat Actors

Sep 2022 – May 2023

- First author (equal contribution) of a hybrid deep learning approach for behavior-based threat actor attribution, employing natural language processing and machine learning.
- Published in ACM Journal: Digital Threats: Research and Practice (DTRAP) 2024. <https://doi.org/10.1145/3676284>

Projects

Domain Generalization with Satellite Images

Jan 2024 – Dec 2024

- Conducting research with Associate Professor Erchan Aptoula at Sabanci University, focused on applying domain generalization in computer vision to analyze satellite imagery across different landscapes and countries.

Implementation of a Post-Quantum Cryptographic Algorithm: SABER/Dilithium

Oct 2020 – Feb 2021

- Implemented the Dilithium cryptographic algorithm in Python, explored optimizations for GPU or FPGA platforms.

Robotic Process Automation for Sabanci University

Sep 2019 – Jan 2020

- Created a desktop application to automate daily tasks of students using Selenium, UIPath.

Technical Skills

Programming Languages: C, C++, Python, Node.JS, Golang

Technologies: RabbitMQ, Celery, MongoDB, MySQL, Django

Interests: Machine Learning, Deep Learning, Computer Vision, Software Development, Reverse Engineering, Cryptography, Network Security and System Security

Languages: Turkish (Native), English (Advanced), Dutch (A2)

Activities

2021-2025 Board Member at University branch of Mimar ve Muhendisler Grubu (MMG) NGO.

2021 Organizer of the Cyber Security & Hacking Competition at Sabanci University (SUCTF'21 and SUCTF'22).

2020 Co-Founder of Sabanci University Cyber Security Student Association.

2019 Volunteer for the Civil Involvement Project (CIP) at Sabanci University, working in nursing homes.

Certificates

VU-NT2 Cursus Alledaags Nederlands 1.1 (A0 → A1) – Successfully completed the course and passed the A1-level Dutch exam.

Certified Threat Intelligence Analyst – EC-Council awarded me the Certified Threat Intelligence Analyst certificate.

GitLab Certified Associate – Awarded by completing the GitLab associate course and passing the exam.

London College of Music Examinations Pianoforte – Grade 3 – Playing piano for nine years and achieved a Pianoforte certificate.