

# Oguz-Kaan Öztürk

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## EXPERIENCE

### Charité – Universitätsmedizin Berlin

Nov. 2024 – Feb. 2025

#### Machine Learning Intern – Department of Urology

- Developed a **Python-based ML system** for text-based detection and classification of iatrogenic surgery complications, processing **10,000+ pseudonymized patient records** from the hospital's clinical information system (KIS)
- Trained **per-complication deep neural networks** (TensorFlow) with individually tuned hyperparameters, addressing extreme class imbalance (<2% positive cases) via SMOTE oversampling and class-weighted loss functions
- Built a full preprocessing pipeline: ICD-10 code parsing, BMI calculation, median imputation, outlier handling, and **feature importance analysis** via Random Forest
- Delivered a **CLI-based tool** for integration into clinical research workflows under a signed confidentiality agreement

## PROJECTS

### Cybersecurity Home Lab | Proxmox VE, Wazuh, Suricata, Ansible, Smallstep CA, Vault

- Built a **bare-metal Proxmox VE hypervisor** with network segmentation via isolated bridges and hardened it across multiple phases following Blue Team and Security Engineering principles
- Deployed **Auditd** with optimized 64-bit syscall rules monitoring critical paths (/etc/passwd, /etc/shadow, /etc/ssh/sshd\_config, /etc/pve/) with unique tags for SIEM correlation
- Wrote a **custom Fail2Ban filter** with tailored regex for Proxmox pvedaemon auth failures; enforced a **Default Deny firewall** with IP-set-based access control, verified via Nmap port scanning
- Deployed **Wazuh SIEM/XDR** for centralized log analysis, threat detection, and incident response
- Integrated **Suricata NIDS** for network-based threat detection and implemented **CIS Benchmark** compliance scanning
- Automated infrastructure provisioning with **Ansible**; deployed **Smallstep CA** for internal PKI and **HashiCorp Vault** for secrets management
- Implemented **IAM hardening**: TOTP MFA, dedicated PVE-realm user without shell access, and Ed25519 SSH key authentication

### Fahrschulekotti.de | Next.js, TypeScript, Prisma, PostgreSQL

- Built a **full-stack driving school management app** featuring student management, instructor management, vehicle fleet management, financial tracking, and scheduling with conflict detection
- Deployed as a **production application for a real client** with protected API routes enforcing role-based access, server-side input validation, audit logging for administrative actions, and EU-hosted PostgreSQL for GDPR compliance

## EDUCATION

### Berliner Hochschule für Technik (BHT)

Oct. 2025 – Present

#### Master of Science in Media Informatics

### Berliner Hochschule für Technik (BHT)

Apr. 2021 – Sept. 2025

#### Bachelor of Science in Media Informatics

- Thesis**: Deep Learning Knowledge Tracing – a full-stack adaptive learning platform (Next.js frontend, FastAPI + PyTorch backend) for predicting student mastery in mathematics
- Implemented the Attentive Knowledge Tracing (AKT) model from a published research paper, transforming raw probability outputs into actionable pedagogical recommendations for classroom teachers

## SKILLS

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**Security Tools:** Wazuh, Suricata, Wireshark, Nmap, Snort, Zeek, Fail2Ban, Auditd, Burp Suite

**Security Concepts:** SIEM/XDR, IDS/IPS, Incident Response, Log Analysis, Vulnerability Assessment, MITRE ATT&CK, Network Segmentation

**Infrastructure:** Proxmox VE, Ansible, Smallstep CA, HashiCorp Vault, Docker, Git, Linux (Debian/Ubuntu)

**Programming:** Python, Java, Bash, SQL, JavaScript/TypeScript

**Training:** TryHackMe – Top 2% (SOC Level 1, Cyber Security 101)

**Languages:** German (native), Turkish (fluent), English (fluent)