ÖMER CAN VURAL

Offensive Security Engineer

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Tech Stack : Red Team Operations • Vulnerability Management • Penetration Testing • C/C++ • Python • Security Tooling • Virtualization

ABOUT ME

Offensive Security Engineer and Systems Developer specializing in low-level vulnerability research, reverse engineering, and exploit development. With a strong foundation in C/C++ and systems architecture, I focus on dissecting complex systems from Kernel drivers to cryptographic software to discover zero-day vulnerabilities and develop precise proof-of-concepts.

EDUCATION

Erciyes University 09/2017 – 09/2023
Computer Engineering B.S.
Thesis : 8-Bit CPU and 8-Bit GPU Design

ASO Technical College 09/2012 – 06/2016
Mechatronics

CERTIFICATES

- TryHackMe – Offensive Pentest
- BTK Akademi – Uygulamalı Sızma Testi – 05/2023
- Cisco / CyberOps Associate – 04/2023
- Cisco / CCNAv7 – 01/2023
- Cisco / Introduction to Cyber Security – 12/2022
- Cisco / NDG Linux Unhatched – 12/2022

TECHNICAL SKILLS

Offensive Security & Red Teaming – **Advanced**
- Active Directory Attacks
- Web and Mobile App Penetration Testing
- Privilege Escalation

Vulnerability Assessment – **Advanced**
- Vulnerability Research
- Vulnerability Scan (Nexpose/Nessus, Manual Verification)
- Exploit Development
- CTEM Engineering

Software Development – **Advanced**
- C / C++ (CMake, gcc/g++, MSVC)
- Cross-Platform Development
- Embedded Software Development
- Qt, OpenSSL

Tooling & Automation – **Advanced**
- Python (Testing, Automation, Scripting)
- Virtualization (VBox, QEMU, Vmware)
- Bash & PowerShell Scripting

WORK EXPERIENCE

KKB – Kredi Kayıt Bürosu **İstanbul – Türkiye**
Vulnerability Assessment and Penetration Tester **08/2023 – 05/2024**
• Performing the distribution of Operating System and 3rd Party Application Patches and validation of security vulnerabilities. Following the vulnerability tickets and mitigate these vulnerabilities. Vulnerability management with Rapid7 Nexpose & Nessus.
• Designed and deployed a Python/Bash vulnerability triage system that processed Nexpose/Nessus and Nmap outputs for 8,000+ hosts, automatically creating 300+ prioritized remediation tickets and reducing critical vulnerabilities by 90%.
• Implemented PowerShell automation to apply CIS Benchmark configurations across 4,000+ Windows servers and endpoints.
• Supported red team operations by conducting Active Directory hardening, lateral movement validation and APT simulations. Performed 8+ web app (Burp Suite, Nikto, sqlmap e.g.) and 3+ mobile app penetration tests (Frida for SLL Pinning Bypass e.g.)

Baykar Technology **İstanbul – Türkiye**
Engineering Intern – Cybersecurity **07/2023 – 08/2023**
• Developed plug-ins for an internal cryptographic tools and security tools for tooling suite with C/C++.
• Conducted research on vulnerability impacts on enterprise services, documented vulnerability cases and recommended mitigations.

Z-Sistem Aviation and Informatics Industry **Ankara – Türkiye**
Engineering Intern – Embedded Systems **10/2022 – 12/2022**
• Contributed to PX4 autopilot modules (C/C++, CMake) and developed a custom mission system and emergency handling and validated related modules via Gazebo simulation.
• Implemented MAVLink modules and QGroundControl integrations to ensure reliable telemetry for mission profiles.

PROJECTS

CVE–2025–54110 Windows Kernel Elevation of Privilege Vulnerability Crash-Only PoC **09/2025**

I analyzed the August and September 2025 Windows security patches (MSU/CAB extraction, hash comparison, Ghidra Version Tracking, and BinDiff) to identify kernel changes and built a Crash-only PoC for CVE-2025-54110 Kernel EoP Vulnerability.
(**C, Reverse Engineering, Vulnerability Research**)

Veraser – Secure File Delete Plug-in for VeraCrypt & Independent CLI Tool **08/2025**

Implemented a cross-platform CLI utility and a VeraCrypt plug-in to provide secure file overwrite and deletion options. Focused on secure wiping algorithms and integration tests, ensuring data irrecoverability against common forensic tools.
(**C/C++, OpenSSL, VeraCrypt, OpenSource Contribution**)

HiddenRoute – Proxy for Anonimity Solution **06/2025**

Built a VM based network tunnel forwarding host traffic through Tor with DNS-leak protection and adblock features. Validated isolation and performance for security research use-cases.
(**C++, Multithreading, Qt, VirtualBox COM APIs, Virtualization)**

8-Bit CPU on FPGA with VHDL & 8-Bit GPU with Logical ICs **08/2022**

The CPU designed and tested on Vivado and consists of two main parts, CPU and memory. VGA-compatible GPU consists two counter blocks for vertical and horizontal synchronization were created from logical ICs
(**VHDL, FPGA, Logic Design, Xilinx, Vivado**)

Flight Controller Software for VTOL on STM32 **02/2022**

Developed flight controller software for VTOL using MPU6050 gyro and BMP180 pressure sensors. The original drivers, the PID algorithm, and more were coded with HAL library.
(**C, STM32, Firmware Development, Driver Development**)

Real-Time Object Tracking With Image Processing **05/2021**

Developed a real-time object tracking system using Python/OpenCV and Arduino-controlled pan-tilt mechanism. The object selected by user with using computer and was tracked. Images were processed with seven different algorithm.
(**Python, OpenCV, Serial Lib**)

REFERENCES

Saim Vedat Şahin
Head of Enterprise Risk Management – KKB – Kredi Kayıt Bürosu
References available upon request

Fehim Köylü
Computer Engineering Assistant Professor – Erciyes University
References available upon request

LANGUAGES

Turkish
• Native Language

English
• English – C1 (Professional working proficiency)

HOBBIES

• RC Planes
• Software Reverse Engineering
• Beekeeping
• Drawing

ADDITIONAL

• Relocation intercity or international is not a problem for me.
• B, B1, M, F type driver's license.