Murat Ismail Sen

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Education

University of California, Santa Cruz Graduated June 2026

Bachelor of Science, Computer Science, GPA: 3.54

Masters, Computer Science expected 2027

Projects

AI Security Copilot | Python, FastAPI, Security Analytics, Log Parsing

- Designed and developed a modular security analytics backend that ingests security logs, normalizes raw events, detects suspicious behavior, and correlates detections into investigation-ready incidents.
- Implemented a normalization pipeline that converts raw Linux authentication logs into structured security events, enabling detector-independent analysis and future support for multiple log sources.
- Built an extensible detection framework using a plugin-style architecture with event-based SSH brute-force detection, evidence collection, and sliding-window correlation algorithms.
- Developed an incident correlation engine that groups related detections and contextual authentication events into unified incidents for analyst investigation.

Cloud-Native Observability Pipeline | Kubernetes, OpenTelemetry, Prometheus, Grafana, Docker

-Deployed a 3-replica containerized NGINX service on Kubernetes using a 2-container sidecar pattern to simulate a monitored inference endpoint.

-Built an OpenTelemetry Collector pipeline that scraped metrics and tailed logs across 2 namespaces, processing 10,000+ requests and remote-writing time-series data to Prometheus.

- Visualized live traffic in a Grafana dashboard and configured Discord alerting triggered by pod health metrics.

Automated MITRE ATT&CK Command Generation | Python, LLMs, Cybersecurity

-Designed a multi stage pipeline using large language models to automatically generate MITRE ATT&CK aligned command datasets with high semantic accuracy and diversity.

-Implemented strict output validation, layered command rewriting, tool rotation, and semantic verification using a secondary LLM to ensure correctness in security sensitive contexts.

-Evaluated results using syntactic correctness, semantic accuracy, and diversity metrics, demonstrating research oriented problem solving and responsible AI system design.

Living World Simulation with LLM Driven NPCs | Godot, Behavior Trees, LLMs

-Developed a prototype simulation of a dynamic game world populated by NPCs and enemy NPCs controlled by behavior trees and LLM generated dialogue. Early test concept of artificial intelligence in the gaming industry.

-Implemented deterministic behavior trees for decision making and integrated a dialogue system that generates context aware responses based on NPC state, role, and environment.

-Designed a state management system to support persistent world changes, enabling NPC behavior and dialogue to adapt to player actions and evolving game conditions.

Technical Skills

Security: MITRE ATT&CK, Log Analysis, Detection Engineering, Wireshark, PCAP Analysis, Digital forensics

Cloud/DevOps: Docker, Kubernetes, OpenTelemetry, Prometheus, Grafana

Languages: Python, C++, JavaScript, HTML, CSS, SQL

Frameworks: Next.js, React.js, FastAPI

Tools: Git, Github

Backend: FastAPI, REST APIs, Async Python

Course Work

Foundations of Cryptography | Computer Security | Machine Learning Basics | Game AI with Python | Data Structure & Algorithms | Computer Systems Design | Mathematical Thinking for Computer Science |Programming Methodologies in C++ | Computer Systems/Assembly Language | Computer Architecture