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Residence: Timișoara - Timiș

EDUCATION

University "Politehnica" of Timișoara. Timisoara, Romania

26/09/2022 – CURRENT

Degree Name: **BACHELOR OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY** Faculty of Automation and Computing

Relevant Modules: computer programming, logic and discrete structures, programming techniques, OOP, computer architecture, computer-aided mathematics, data structures and algorithms, fundamentals of software engineering, programming and analysis of algorithms, Parallel and Distributed Algorithms,

Distributed Programming of Software Systems, Fundamentals of Artificial Intelligence, Formal Languages and

Compilation Techniques, Data Analysis and Visualization, Design and Architecture of Complex Software Systems

Experience

Liga AC Labs @ OPSWAT | AI Assistant for the Meatdefender Platform

Tech: React (Vite), Tailwind CSS, FastAPI, Node.js, Gemini 1.5, LangChain, ChromaDB, sentence-transformers, SWR

A sophisticated full-stack chatbot application developed by a 2-person team as part of the **Liga AC Labs** program in collaboration with **OPSWAT**. This AI Assistant revolutionizes cybersecurity analysis by combining the power of **Google's Gemini 1.5 LLM** with **OPSWAT's MetaDefender** technology to deliver accurate, context-aware insights.

We are building this assistant to help users **interpret and understand scan results**, such as **DLL detections**, **threat classifications**, and **URL reputation scores**, as well as **explain the sanitization process** applied through **Content Disarm and Reconstruction (CDR)**—which does not produce conventional detections but instead modifies files to remove potential threats. The assistant also helps users understand unpacked content and advanced file analysis outcomes, offering full visibility into complex scan reports.

The chatbot supports MetaDefender features such as:

- **Multi-scanning engine analysis** using 30+ AV engines
- **Advanced file inspection** for hidden or embedded threats
- **CDR-based file sanitization**
- **Dynamic unpacking** of archives and nested files
- **URL reputation checking**
- **Detailed threat intelligence reports**

The system integrates **Gemini 1.5** via the google-generativeai library, enhanced by a **Retrieval-Augmented Generation (RAG)** approach for relevance and depth. The **FastAPI** backend handles preprocessing, scraping, and vector embedding using **sentence-transformers** from HuggingFace. Context is stored and retrieved through **ChromaDB**, coordinated via **LangChain**.

A **Node.js backend** manages MetaDefender interactions such as file, hash, and URL scans, and handles real-time stream processing. The **frontend is built with React (Vite)** and styled using **Tailwind CSS**, providing a responsive chat interface with **drag-and-drop file uploads**, **URL input**, and **real-time feedback** via Axios-based REST APIs.

The architecture prioritizes **scalability**, **modularity**, and **security**, enabling real-time analysis while supporting the compliance and protection goals of OPSWAT's cybersecurity platform.

Awards and Certifications

19/04/2022

Participation at the national stage of Society's Olympiad for excellence and performance in informatics – Society's Olympiad for excellence and performance in informatics

26/04/2021

Participation at the national stage of Society's Olympiad for excellence and performance in informatics – Society's Olympiad for excellence and performance in informatics

Granada, Spain

ERASMUS PROJECT PARTICIPATION

During the 3-week project, I engaged in intensive web development learning, collaborating with two other colleagues to complete a project.

27 august 2024

Professional Certificate: IBM Full Stack Software Developer

Completed 14 courses and projects, including:

- **Full Stack Application Development Capstone Project**
- **Python for Data Science, AI & Development**
- **Introduction to Cloud Computing**

Skills Acquired:

- **Computer Programming:** HTML, CSS, JavaScript, Node.js, React, Python Programming
- **Cloud Computing:** DevOps, CI/CD, Docker, OpenShift, Kubernetes
- **Software Engineering:** Software Architecture, Software As A Service (SaaS)
- **Web Development:** Modern web development, Bootstrap
- **Programming Principles:** Core programming concepts, Application Security
- **Data Management:** SQL and NoSQL databases

PROJECTS

Project: Wall Street Academy – Full-Stack Trading Simulation Platform

GitHub: <https://lnkd.in/d4BSTaAr>

Designed and developed a full-stack, real-time trading simulator aimed at financial education. The platform integrates a high-performance **FastAPI backend** with full **async I/O**, a **MongoDB** database using **Beanie ORM** and **Pydantic**, and a **React.js** frontend styled with **TailwindCSS**. It includes live trade execution, secure authentication, and dynamic data visualizations via **Chart.js**.

Implemented **blockchain features** using **Solidity**, **Hardhat**, and **Web3.py**, creating and minting **ERC-721 NFTs** to reward users for performance milestones like profitability and long-term activity. Added a **multilingual AI assistant** powered by **Mistral LLM via Ollama**, capable of explaining financial terms and offering contextual guidance to beginners.

Built a **custom AI-powered stock recommendation engine** based on **technical indicators** (RSI, MACD, SMA), user risk profiles, behavioral data, and basic **machine learning** logic. The engine outputs multi-factor confidence scores, investment theses, and sector trend snapshots, while also applying collaborative filtering.

Integrated the **Yahoo Finance API** to stream categorized financial news (press releases, earnings reports, videos) with intelligent **ticker-based filtering**, duplicate detection, and fallback handling for reliability. Key platform features include a real-time **portfolio dashboard**, a realistic **trading simulator**, blockchain-based **NFT achievements**, and a personalized **AI assistant**.

Tech Stack: FastAPI, Python, MongoDB, Beanie, Pydantic, React.js, TailwindCSS, Chart.js, Solidity, Hardhat, Web3.py, Mistral LLM, Ollama, Yahoo Finance API, OAuth2, Docker, Git.

Project: Full-Stack Platform for Solving Algorithmic Problems

GoodCode is a **dynamic full-stack application** built with **React** (frontend), **Node.js** and **Express** (backend), and **MongoDB** (database). The platform empowers users to **create accounts** or **log in via Google authentication** seamlessly. It offers a curated **list of coding challenges**, enabling users to solve problems in popular programming languages such as **C#, Java, Python, and JavaScript**.

The application leverages the **Piston open-source runtime engine** to execute and evaluate code submissions efficiently. To enhance user engagement, GoodCode includes a **real-time leaderboard**, ranking users based on the number of challenges solved. Additionally, **interactive user profiles** provide detailed insights, including the total problems solved, links to each solved problem (with **problem IDs**), and the programming languages used.

GoodCode combines **modern web technologies**, **gamified learning elements**, and a **robust backend** to deliver an engaging and scalable platform for programming enthusiasts.

[Github Repository](#)

Project: Full-Stack Job Platform

Developed a full-stack job matching platform using **Django**, **Django REST Framework (DRF)**, and **React**, enabling user authentication, job posting, profile management, and real-time job search functionality. Implemented **token-based authentication**, **RESTful APIs**, and integrated a chatbot with **PDF text extraction** and **external API communication** for enhanced user interaction. Designed a responsive **React frontend** with seamless state management and asynchronous data fetching. Utilized **Docker** to containerize both backend and frontend applications, ensuring consistent development, testing, and production environments. Set up **CI/CD pipelines** with **GitHub Actions** and deployed the application using **AWS Lambda** for scalable, serverless infrastructure. Technologies include: Python, Django, DRF, React.js, Docker, AWS, GitHub Actions, REST API, CI/CD, Authentication, PostgreSQL.

[GitHub Repository](#)

Food Donation Platform

- Developed a full-stack web platform that connects food donors with beneficiaries, streamlining the donation process through geolocation and AI-based suggestions. Implemented **user registration** with role-based functionality, allowing donors to view collection points and needed items, while beneficiaries can submit delivery addresses and food requests. Integrated an **interactive map** using **Leaflet.js** and **Leaflet Control Geocoder** for geospatial visualization of donation logistics. Built the backend with **Node.js** and **Express.js**, and used **MongoDB** for storing user data and donation records. Incorporated **AI algorithms** to provide intelligent food donation recommendations. Technologies: JavaScript, Node.js, Express, MongoDB, Leaflet.js, Geocoding, AI, REST API, HTML, CSS.
- <https://github.com/CristiL75/DonareMancare>