HENOK WEHIBE

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WORK EXPERINCE

MicrometeUK
Lead/Full stack developer *2022 - 2024*

· Led the development of an Automatic Number Plate Recognition (ANPR) as a service project.

- Automated vehicle identification and parking enforcement.

- Reduced cost by using cloud infrastructures.

· Designed a Python/Flask backend with Redis and a React frontend.

- Developed a new user interface with React, enhancing user experience and responsiveness.

- Integrated the React frontend with Python/Flask backend using RESTful APIs.

· Developed Ansible roles to automate deployment across multiple environments.

- Automated the deployment of the React frontend and Python/Flask backend using Ansible roles, enabling continuous integration and delivery.

- Eliminated manual configuration errors and ensured consistent deployments across all environments.

- Increased system reliability and reduced downtime through automated configuration management with Ansible.

· Leveraged Redis with SSE(Server-Sent Events) to provide instant updates without the need for constant page refreshes.

- Implemented a Redis Pub/Sub channel to broadcast parking activity updates from the backend.

- Developed an SSE endpoint in the Python/Flask backend to push updates to connected clients.

- integrated client-side JavaScript/React to handle incoming SSE events and update the user interface dynamically.

· Utilized pandas to clean and process ANPR data, removing duplicates, correcting errors, and standardizing formats for subsequent analysis

- Improved the accuracy of ANPR data analysis by cleaning and processing the data with pandas.

- Facilitated data sharing by exporting processed ANPR data to CSV, Excel, and JSON formats using pandas.

· Developed cross-platform desktop applications with Electron and mobile apps with Ionic Framework, seamlessly integrating them with the ANPR Flask backend.

- Utilized RESTful APIs to enable communication between the Electron/Ionic apps and the Flask backend, facilitating real-time data exchange and ANPR functionality.

- Leveraged Electron and Ionic to create native apps for multiple platforms (Android), expanding the reach of the ANPR service and increasing user accessibility.

· Built a low-power SoC IoT camera using an Arduino ESP32, integrating a camera module for video capture and transmission to the ANPR system

- Designed the hardware and firmware for a SoC IoT camera using an ESP32 microcontroller, integrating a camera module for video capture and Wi-Fi for network connectivity.

- Leveraged the ESP32's built-in Wi-Fi capabilities to enable wireless video streaming.

- Integrated the camera with a cloud platform for remote access, live streaming, and storage of video footage

· Integrated real-time video streaming using FFmpeg and OpenCV into the ANPR system, enabling continuous monitoring and analysis of vehicle traffic.
- Utilized FFmpeg and OpenCV to create a video streaming pipeline that feeds live footage into the ANPR system for immediate number plate recognition

- Leveraged FFmpeg to efficiently encode and stream video data from the ESP32 camera to the ANPR system, minimizing latency and bandwidth consumption

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Freelance/Self Employed
Web Devloper *2020 - 2022*

· Developed e-commerce websites, landing pages, and blogs for clients across various industries leveraging WordPress and React.
- Provided a comprehensive suite of services, including domain registration, email hosting, website design and development, and ongoing website maintenance.

- Offered custom website solutions tailored to clients' needs, from initial concept and design to development, deployment, and search engine optimization.

- Improved website loading speeds by utilizing Edge Computing Hosting and optimizing website performance.

- Performed comprehensive website audits encompassing performance, accessibility, best practices, and SEO, utilizing tools like Google Lighthouse.

- Implemented features like store locators, custom map markers, and dynamic zoom levels using the Google Maps API within the WordPress theme.

project
Home Laboratory *2017 - 2020*

· Customized Debian/Linux distributions to create specialized versions for desktops, laptops, and servers, including pre-installed software and custom branding
- Utilized remastering tools and scripts to create customized Debian/Linux distributions.

- Manually configured and optimized Debian/Linux distributions to meet specific performance and security requirements for desktops, laptops, and servers.

- Hosted and maintained Gitea instances on cloud platforms (AWS, Azure, GCP) for private source code management, ensuring high availability, security, and performance

- Established a private Docker Registry to securely store and manage Docker images for internal projects, ensuring controlled access and efficient distribution

- Built custom images using Packer and Vagrant to create consistent and reproducible development and testing environments, eliminating configuration inconsistencies and improving team collaboration."

- Leveraged Packer and Vagrant to create custom images that included pre-configured development tools, dependencies, and configurations reducing setup time.

- Configured KVM, QEMU, and Vagrant on host machines to create a versatile virtualization environment for running multiple VMs, enabling efficient development, testing, and deployment of applications

- Implemented Nginx as a reverse proxy to handle incoming requests, caching static content, and routing traffic to appropriate backend servers.

- Enabled SSL termination with HAProxy and Nginx to secure web traffic and protect sensitive data.

- Installed and set up Kubernetes clusters using kubeadm and Microk8s to provide a robust and scalable platform for deploying and managing containerized applications.

- Developed an Ansible role that automates the installation and configuration of WireGuard, enabling rapid and secure deployment of VPN servers and clients.

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