

# HENOK WEHIBE

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## WORK EXPERIENCE

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MicrometreUK

*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.
  - Utilized Redis's HSET data structure to efficiently store and manage ANPR license plate data, enabling fast lookups and efficient data retrieval for real-time applications
  - 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 Developer*

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.
  - Built custom images using Packer to create consistent and reproducible development and testing environments, eliminating configuration inconsistencies.
  - 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
  - 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
  - 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.

## TECHNICAL TOOLS AND SOFTWARE

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<b>Configuration management</b>	Ansible
<b>Container orchestration</b>	Kubernetes
<b>Cloud Technologies</b>	AWS, GCP and Azure
<b>Languages</b>	Python and Javascript
<b>Databases</b>	MySQL, Redis and Monogodb
<b>Version Control</b>	Git

## Certifications

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<b>freeCodeCamp</b>	Responsive Web Design	JavaScript Algorithms and Data Structures
<b>kaggle.com</b>	Intro to Programming	

## EDUCATION

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<b>South Thames College</b>	Diploma, Information 6echnology
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