Nikolaos Karaolidis

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EDUCATION

Sep 2020 – Jul 2024	**M.Eng.** Computer Science UNIVERSITY OF MANCHESTER, UK
	First-Class Honours

Sep 2014 – Jun 2020	High School Diploma VARVAKEIO PUBLIC MODEL HIGH SCHOOL, GREECE
	12th **Grade Average:** 96%

WORK EXPERIENCE

Nov 2024 - Present

Senior Associate Software Developer   SAS INSTITUTE, GLASGOW, UK

A global leader in analytics and AI software, SAS is empowering organizations across more than 145 countries.

- Spearheaded the design and development of a microservices-based platform (**Go**, **Python**, **Postgres**, **Redis**), enabling massively parallel task execution at accelerated rates compared to the legacy solution.
- Architected distributed task scheduling with **Ray** and **KEDA**-powered autoscaling on **Kubernetes** clusters.
- Authored and maintained the platform's **unit test** suite and **CI/CD** pipelines to guarantee reliability across all services.
- Triaged and fixed Viya 4 UI (**TypeScript**) and backend (**Go/Java**) issues.
- Prototyped a lightweight isolation platform for the SAS language executor using **Linux kernel** capabilities and system calls.

Jun 2023 - Sep 2023

Software Engineering Intern   WEBHOTELIER | PRIMALRES, ATHENS, GREECE

With 9000+ customers in 38 countries, WebHotelier | primalRES stands as one of Europe's hospitality tech giants.

- Spearheaded a complete overhaul of the company's **Grafana** dashboards, slashing the time-to-load by approximately 80% while also increasing the number of metrics shown.
- Collaborated directly with the CTO to secure a year-long contract with **ClickHouse Cloud** and **AWS**.
- Migrated the entire metrics stack from **InfluxDB** to **ClickHouse**. This shift amped up performance by over 50% without inflating operational costs.
- Engineered an open-source **Telegraf** ClickHouse plugin optimized for Terabyte-scale data outputs, outperforming the in-built plugin in terms of efficiency.
- Deployed Telegraf across 12 **Amazon EC2** instances, revealing and subsequently rectifying performance bottlenecks.
- Modernized the logging approach by transitioning to **ClickHouse**, thereby ending the thread-related challenges of the previous file-based system.
- Teamed up with fellow developers to incorporate **DataDog** performance monitoring into **Java** applications, improving understanding of app operations and pinpointing areas of enhancement.

Jun 2022 - Aug 2022

Software Engineering Intern   SOFTWIRE, MANCHESTER, UK

Working with some of the UK's leading brands, Softwire designs bespoke software and delivers innovative digital engineering expertise.

- Co-developed a pro bono web app using **React Native**, **Typescript**, **AWS Lambda**, and **AWS DynamoDB** in a 6-person team.
- Played a key role in building the majority of the application's **REST** backend, ensuring efficient data handling and connectivity.
- Participated in daily stand-ups, retrospectives, sprint planning, and review meetings.
- Engaged in direct client interactions, presenting progress, receiving feedback, and iterating on the application in real-time.
- Authored clean and maintainable code which was tested using unit, integration, and end-to-end testing.

PROJECTS

Ongoing

Personal Homelab

Adapted an old PC into a **Linux Server** for 40+ applications. Serves as a valuable platform for refining skills, learning the latest technologies, while also hosting other personal projects.

- **Arch Linux** as the base OS with **MergerFS** and **SnapRAID** as a storage and backup solution.
- **Docker**, **Docker Compose**, and **Portainer** as a container engine and management system.
- **Cloudflare Argo Tunnel**, **Nginx**, and **Let's Encrypt** for hosting, proxying, and SSL certificate automation.
- **Grafana**, **InfluxDB**, and **Telegraf** for constant system monitoring, stats visualization, and email alerts.
- **DevOps Stack** including a self-hosted **GitLab** instance and **VSCode server**.
- Public and private **Wireguard** instances and a **Tor** relay for remote management and privacy.
- Full-stack **media management server** including indexing, file downloading, metadata editing, and a personal streaming service.
- Much more, including a **blog**, a **private cloud** service for family/friends, and a URL shortener.

Ongoing

Qrust

An **algorithmic trading library** written in **Rust**, leveraging cutting-edge technologies for financial analysis and trading. Short for "Quantitative Rust".

- Uses a compartmentalized, **microservice**-like architecture, enabling flexible and scalable development of components in a robust and isolated manner.
- Integrates with the Alpaca **REST API** and **WebSockets** for real-time and historical market data acquisition.
- Employs **ClickHouse** for efficient, fully-automated, high-speed storage and querying of trading data.
- Conducts **sentiment analysis** on financial headlines using a custom model based on **FINBERT**, to gauge market sentiment and inform trading decisions.

Sep 2022 - Apr 2023

Trailblazer

Third Year University Project. Collaborated with a research group from Lancaster University to develop an **OS performance evaluation platform**. Built using Go and Python. A paper was later submitted to the International Conference on Architectural Support for Programming Languages and Operating Systems **(ASPLOS) 2024**.

- Designed experiments to benchmark performance of network-based applications such as **Apache** and **Caddy**.
- Implemented multiple-architecture support using the **QEMU** virtual machine emulator, focusing on **x86-64** and **RISC-V**.
- Conducted testing and analysis to derive a memory-optimized **Linux** kernel configuration.
- Performed maintenance and bug fixes on the **Go** codebase and reduced experiment runtime using **RAM-based filesystems**.

Sep 2020 - Jun 2021

EazyShop

First Year University Project. Worked in a 6-person team to implement a **full-stack shopping list application**. Built using Python, Flask, HTML, Bootstrap, and MySQL.

- Configured and hosted a shared **MySQL** database using **Docker** for portability.
- Implemented **web scrapers** using **Python** for the 6 largest UK grocery store chains. Used to extract, parse, and import stock, pricing, and descriptions from all available products.
- Integrated the **MySQL** back-end with the **Flask** front-end and deployed the app using **Docker Compose**.

LANGUAGES

- Native: Greek, Serbocroatian
- Fluent/C2: English
- Beginner/B1: German