Ivica Matic - Software Engineer

ivica-matic@outlook.com
www.linkedin.com/in/matic-ivica
www.github.com/ivica3730k

Software Engineer currently working at Group Nexus, with a passion for Engineering, DevOps, Electronics, 3D Printing and Amateur Radio.

Backend Software Engineer @ Group Nexus

Apr, 2024 - Present

Creating and maintaining Python API Microservices deployed on Google Cloud Run and Google Cloud Functions.

- Python and Flask Software Engineering for new and existing APIs.
- Redis layer for caching.
- Google Pub/Sub for asynchronous triggers + Google VPC networks.
- Google Cloud Build pipelines with Terraform for deployments.
- Google Artifact Registry for storing docker images.
- Google Firestore + Firestore triggers.

Software Engineer @ Spatial Days Ltd.

May, 2022 - Apr, 2024

Directly involved in creating and deploying custom-based earth-observation datasets cataloguing solutions using Python, Azure Cloud, Kubernetes and Terraform.

- Python and NodeJS Software Engineering both in and out geospatial domain.
- GitHub actions for automated Terraform Deployments and Docker image building.
- Azure Kubernetes Service + Azure Container Registry.
- Azure Active Directory, Azure APIM and App Services.
- Terraform, Helm and Kubernetes via their Terraform providers.
- Maintaining free and open-source software in the GIS Community.

Worked on:

- **Adopting STAC to simplify geospatial workflows**

Software Engineer @ Sundance Multiprocessor Ltd.

May, 2020 - April, 2022

Member of a Design Engineering team working on creating Edge Embedded solutions utilizing FPGAs for various use cases with customers ranging from Agriculture to the Mining industry.

- Working on embedded real-time projects using ROS, ROS2, and MQTT with Python and C++.
- Creating Computer Vision embedded applications utilizing Object detection neural networks, on CPU, GPU, and FPGA architecture.
- Software Engineering for Embedded FPGA Platforms.
- Training image detection neural network models from scratch, labeling custom, problem-specific datasets.
- Skills gained in the field of Robotics, Electronics, Design Engineering, and Product Management.

Worked on:

- **Autonomous Robotic InSpEction (ARISE)**
- **Field Companion**
- **Power Profiling Embedded FPGA Systems**
- **Fruit Detection Using MPSoCs**

BSc (Hons) Software Engineering - 1st Class @ Nottingham Trent University

2018 - 2021

- Programming in C++, Python, Java.
- Working with Relational databases and ORMs.
- Experience with HTML, CSS, and JavaScript.
- Good knowledge gained on Django, Flask, Bottle, SQLAlchemy, OpenCV, Tensorflow, and more.
- Experience gained making custom-tailored domain-specific Computer Vision solutions.
- Practical knowledge of training and pruning neural networks.

Training Courses

- **Alliance Partner Training v2019.2** - Xilinx
- **Embedded Academy 2020** - Xilinx
- **Developing AI Inference Solutions with the Vitis AI Platform** - Xilinx
- **Accelerating Applications with the Vitis Unified Software Environment** - Xilinx

Publications

- **Estimating the Power Consumption of Heterogeneous Devices when performing AI Inference**
- **Power Profiling Embedded FPGA Systems**
- **Fruit Detection Using MPSoCs**