Ivica Matic

Software Engineer

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Software Engineer currently working at Spatial Days Ltd., with a passion for Engineering, DevOps, Electronics, 3D Printing and Radio.

Software Engineer @ Spatial Days Ltd.

May,2022 - Present
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.

Technologies used and learned: STAC-Api Standard, Azure, GDAL, QGIS, Postgis, Terraform, Helm, Kubernetes, PyPi, ACR, AKS, Azure AD, Azure Storage Accounts, SERP & Scraping.
Worked and working on:

- **Adopting STAC to simplify geospatial workflows** https://sa.catapult.org.uk/blogs/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, labelling custom, problem-specific datasets.
- Skills gained in the field of Robotics, Electronics, Design Engineering and Product Management.

Technologies used and learned: ROS, ROS2, MQTT, OpenCV, Darknet, Tensorflow, LaTeX, GitLab Actions, CI/CD and Unit Testing.

Worked on:

- **Autonomous Robotic InSpEction (ARISE)** www.sundance.com/flipper-testing/
- **Field Companion** www.sundance.com/fieldcompanion-finale/
- **Power Profiling Embedded FPGA Systems** www.sundance.com/hipeac-internship-2021/
- **Fruit Detection Using MPSoCs** www.hackster.io/sundance-ai/fruit-detection-using-mpsocs-cc0e80

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

2018 - 2021

- Programming in C++, Python, Java.
- Working with Relational databases and ORM.
- 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.
- Proficiency with Linux.
- 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** https://arxiv.org/abs/2207.06150v1
- **Power Profiling Embedded FPGA Systems** www.sundance.com/hipeac-internship-2021/
- **Fruit Detection Using MPSoCs** www.hackster.io/sundance-ai/fruit-detection-using-mpsocs-cc0e80

Interests

- 3D Printing and PCB Design
- Ham Radio and RF Electronics
- Distributed computing systems