

Ivica Matic

Software Engineer

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Software Engineering Graduate from Nottingham Trent University with a passion for Software Engineering, DevOps, and Radio.

Experience

Software Developer

Spatial Days Ltd.

www.spatialdays.com

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
- GitHub actions for automated Terraform Deployments and Docker image building
- Azure Kubernetes Service + Azure Container Registry
- Azure Active Directory, App Services
- Terraform, Helm and Kubernetes via their Terraform providers
- Maintaining free and open source software in the GIS Community
- Automated testing and automated deployment pipelines

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/) <https://sa.catapult.org.uk/blogs/adopting-stac-to-simplify-geospatial-workflows/>

Software Engineer

Sundance Multiprocessor Ltd.

www.sundance.com

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, 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

Education

BSc (Hons) Software Engineering

Nottingham Trent University

www.ntu.ac.uk

2018 - Present

Programming in C++, Python, Java

Experience with HTML, CSS and JavaScript. Working with Relational databases and ORM.

Good knowledge gained on Django, Flask, Bottle, SQLAlchemy, OpenCV, Tensorflow

Computer Vision, System Design and Implementation, Linux, Computer Networking

Modules taken include:

- **Foundations of Comp & Tech** (High 1st)

- **Info & Database Engineering** (Mid 1st)
- **Software Engineering** (Mid 1st)
- **Internet Application Programming** (Low 1st)
- **Systems Software** (Low 1st)
- **Software Design and Implementation** (Low 1st)
- **Computer Science Programming** (Low 1st)
- **Practical Project Management and Professional Development** (High 2.1)
Completed industry placement year at Sundance Multiprocessor Ltd. (Graded with High 1st)

Training Courses

- **Alliance Partner Training v2018.3** - Xilinx
- **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

Awards and Activities

- Amateur Radio Operator And Engineer - 9A3ICE
- Award for best Final Dissertation on the topic "Universal IoT development board", Slavonski Brod, Croatia. May 2018.
- 1st place for "Universal IoT Development board" at regional Croatian contest "Mladi @ Inovacije 2018"
- 3rd place in regional contest "Fundamentals of Electronic Engineering and Electronic Measurements"

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/hipec-internship-2021/
- **Fruit Detection Using MPSoCs** www.hackster.io/sundance-ai/fruit-detection-using-mpsocs-cc0e80

Other

Experience using

- Autodesk EAGLE

- KiCAD
- Analog Devices LTSpice
- JlcPcb Manufacturing services
- Autodesk Fusion360
- 3D Printing and Cura Slicer
- Ham Radio and related electronics