Ivica Matic

Software Engineering Student (Nottingham Trent University)

Embedded Software Engineer (Sundance Multiprocessor Ltd.)

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Software Engineering student at Nottingham Trent University. Computer Technician by vocation, currently working in Embedded Software Engineering doing Computer Vision, process acceleration and power-profiling.

Experience

Embedded Software Engineer

Sundance Multiprocessor Ltd.

www.sundance.com

May,2020 - Present
Member of a Design Engineering team working on creating Edge Embedded solutions utilising 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 utilising 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.
- Usage of AWS EC2 Services for compute-intensive tasks like Neural Network Training and inference services.
- Skills gained in the field of Robotics, Electronics, Design Engineering and Product Management.
- Practical knowledge gained in 3D Printing and CAD design.
  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 Managment and Profesional 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

- **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

Other

Experience using

- Autodesk EAGLE
- KiCAD
- Analog Devices LTSpice
- JlcPcb Manufacturing services
- Autodesk Fusion360
- 3D Printing and Cura Slicer