Arvin **Ignaci**

Software Engineer · Machine Learning Specialist

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Skills

Languages	Python, JavaScript, Rust, C/C++, VHDL, SQL, Matlab, Lua, LaTeX, HTML
Libraries & Frameworks	TensorFlow, PyTorch, OpenCV, pandas, scikit-learn, Vue.js, WebGPU, Qt
Tools	Git, CMake, Xilinx ISE, Autodesk Fusion 360, Cadence Innovus
Platforms	Linux, Windows, Web, AWS, Android, FPGAs, embedded systems

Education

Georgia Institute of Technology — *Atlanta, GA*

M.S. in Electrical & Computer Engineering — *Aug. 2019 – May 2021*

Digital Control · Computer Vision · Deep Learning · Physical Design Automation for VLSI Systems · Statistical Machine Learning · Digital Image Processing · Wireless Networks · Digital Processing of Speech Signals · Data Compression & Modeling

The Ohio State University — *Columbus, OH*

B.S. in Electrical & Computer Engineering — *Aug. 2015 – May 2019*

Work Experience

Raytheon Missiles & Defense — *Tucson, AZ*

Systems Engineer II — *Jun. 2021 – Present*

- Technical lead on a project to automate training and deployment of neural networks on embedded hardware.
- Spearheaded customer demonstrations and coordinated project timelines of third-party contractors.
- Owned the machine learning component of an Unmanned Aerial Systems (UAS) program. Ensured functionality of software ahead of flight tests and analyzed test data to evaluate accuracy and enhance the model.
- Conducted research and development of neural networks for image classification.
- Jumpstarted effort to upgrade company-wide internal libraries from RHEL7 to RHEL8.

Advanced Micro Devices (AMD) — *Austin, TX*

AI & ML Software Engineering Intern — *May – Aug. 2020*

- Developed an algorithm to predict the results of simulated benchmarks up to a week in advance.
- Key contributor to a paper on benchmark prediction submitted to an internal ML conference.

CAL Analytics — *Columbus, OH*

Software Engineering Intern — *May – Jul. 2019*

- Created internal Python tools to automatically convert and analyze large datasets of aircraft trajectory and sensor data.
- Developed 3D geospatial visualizations for aircraft and satellites in CesiumJS.
- Generated photorealistic images in Blender to train DeepLabv3 for autonomous aerial navigation.

Dayton, OH

May - Jul. 2018

- Led an initiative for a hardware-in-the-loop testbed on ODROID using ArduCopter and UxAS.
- Debugged and extended functionality of existing AFSIM tools and also created new tools.
- Ported software from Windows to Linux.

May – Jul. 2016

- Developed and validated stochastic models of aircraft radar and INS/GPS systems in C++ for AFSIM.
- Created data visualization tools in Matlab for large trajectory datasets.

Lumir Research Institute — *Dayton, OH*

Lab Assistant II — *Jun. – Aug. 2015*

- Co-led team developing data visualizations for diabetes patients in collaboration with Humana.
- Developed an internal application for processing GIS imagery using Qt and OpenGL.

Wright-Patterson AFB — *Dayton, OH*

Wright Scholar Research Assistant — *Jun. – Aug. 2014*

- Led team developing prototype indoor positioning system using COTS technology.

Research

School of Computer Science at Georgia Tech — *Atlanta, GA*

VLN Instruction Generation — *Aug. – Dec. 2019*

- Developed internal tools to automatically generate natural language directions in Facebook's AI Habitat sim environment.

Center for High Performance Power Electronics (CHPPE) at Ohio State — *Columbus, OH*

Hybrid / Turbo-Electric Propulsion — *Dec. 2016 – Jan. 2018*

- Developed Matlab tools to accurately predict noise spectrum of switched-mode inverters.

Selected Projects

Deep Learning at Georgia Tech | Facebook AI Research — *Atlanta, GA*

MRI Image Reconstruction — *Spring 2020*

- Extended U-Net architecture trained on fastMRI dataset using different window functions.
- Handled software implementation and operation of Google Cloud backend.

Ohio State College of Veterinary Medicine — *Columbus, OH*

Artificial Canine Posterior — *Spring 2019*

- Designed and produced sensor hardware using CAD and 3D printing.
- Implemented sensor reading and data logging over CAN bus on Arduino microcontrollers.

Advanced Digital Design at Ohio State — *Columbus, OH*

Elevator Controller — *Spring 2018*

- Developed VHDL implementation of an elevator controller and simulator using the SCAN algorithm. Design and validation done in Xilinx ISE.