Julian Pitney

SOFTWARE ENGINEER

Contact

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Skills

Python

Docker

Terraform

AWS

Kubernetes

CI/CD

Neural Networks

Git

Linux

Digital Electronics

Sensors

Actuators

Soldering

Languages

English

French

Portfolio

https://julianpitney.ca

Work Experience

Software Engineer Team Lead, Récherches Neuro-Hippocampe

OCTOBER 2021 — PRESENT

- Hired and led a team of 5 developers to build a digital platform for the company. I started by developing a deep understanding of the business, it's processes, data and systems. I achieved this by talking to nearly all 100 employees and learning everything I could about their workflows and which data were important to them. Our team then used this understanding to design a data model, API and frontend tailored to the organization. We deployed the beta into our dev environment and received very positive feedback from staff and management (because several workflows directly involved in generating revenue will now be significantly more efficient and scalable). We're currently going through the security hardening process with a professional 3rd party pen testing shop (which i'm learning a lot from). We're scheduled for production deployment this summer where ~100 employees will begin using our system to provide care to >12k patients across multiple sites.
- Designed and implemented the company's cloud infrastructure using Terraform, AWS and K8s. The infrastructure was used to host our Django API, React frontend, and ~300GB of data in RDS and S3.
- Built all our CI/CD pipelines using GitHub Actions.

Software Engineer (part-time), GeneRxN Research

FEBRUARY 2022 — PRESENT

- Built prototype qPCR machine with integrated DNA purification.
- Selected and integrated high-accuracy SMD temperature sensors from Texas Instruments. Designed PCB, manufactured boards, performed SMD soldering and programmed resulting sensor boards to serve as control loop inputs.
- Implemented photodiode amplifier to measure quantity of PCR products.
- Met regularly with chemistry team to ensure system met their requirements.

Software Developer, University of Ottawa - Department of Cellular and Molecular Medicine

DECEMBER 2017 — OCTOBER 2021

- Worked with M.Sc, PhD and postdoc students to automate their experiments.
- Built a complete lightsheet microscope system to generate 3D scans of full-brain vasculature in rodents. System cost $30,000 but scan quality was similar to that of $800,000 commercial systems. These scans were published in a paper.
- Used Spinnaker SDK (C++ and Python interfaces) to integrate FLIR cameras.
- Designed and manufactured mechanical components (CNC, laser cut, FDM).
- Used RPi, Arduino and Jetson Nano in a dozen different projects.
- Published Python distribution packages to PyPi.
- Used OpenCV to process image data.
- Worked with a wide variety of sensors and actuators.

Software Developer (Co-op), Thales Canada

JANUARY 2015 — AUGUST 2016

- Installed and communicated with GPS sensors using Python.
- Processed LIDAR data from sensors mounted on autonomous rail systems.