# sean rice

https://sean.ee | https://github.com/sean-rice | contact@sean.ee

I'm an engineer with software development and machine learning experience. I'm open to 100% remote software engineering, machine learning, DevOps, or MLOps roles where I'll be able to level-up my skills and contribute to building, maintaining, and running useful products and services. I strongly value environments which enable continuous learning, teamwork, thoughtful problem solving, and quality engineering.

## skills & technologies

**Python 3**: Flask (+ Starlette), Jinja2, SQLAlchemy, Async (+ Trio), NumPy, PyTest, Typing + MyPy, Poetry
**.NET Core**: C#, ASP.NET Core with MVC architecture, REST APIs, EF Core ORM, Razor Web templates
**DevOps Tools**: Docker + Compose, Puppet, GitLab CI
**Cloud Services**: Amazon Web Services (EC2); Microsoft Azure App Service, Azure DevOps & Pipelines, Azure ML

**Exposure to**: SQL, BGP (GoBGP), Protobuf + GRPC, HTML + CSS, Java (Spring Boot, MapReduce), Rust, C, CUDA
**Deep Learning / Machine Learning / Computer Vision**:
- PyTorch, TensorFlow, PySpark, Scikit-Learn
- Familiar with neural networks, decision/regression trees, support vector machines, clustering
- OpenCV, Faster/Mask R-CNN + FPN, YOLO

## work experience

**Platform Engineer – Vultr – Remote**                                                    May 2021 — Present
- Created a new, global DDOS protection system from scratch. Handled almost all aspects of the new system's implementation (Python 3, Docker, GoBGP, GRPC, Puppet, Postgres, PHP).
  - > Created an event handling service to continuously monitor for attacks and store mitigations in a DDOS database, as well as export mitigations from the database to the relevant networking equipment over BGP. Also exposed CRUD and search functionality with a Python HTTP REST API.
  - > Containerized all subsystems with Dockerfiles, and wrote a Docker Compose file to easily isolate and operate the DDOS system as a whole.
  - > Created a Puppet module to enable automated configuration management across all sites where the DDOS system was deployed. Templated various configuration files with EPP as needed.
  - > Wrote unit tests and functional/integration tests for the Python library, supporting containers, the DDOS Puppet module, and the application configuration contents itself.
  - > Implemented CI (continuous integration) pipelines in GitLab to run tests, build Docker images, and publish artifacts automatically for the Python library and supporting containers.
- Served as a source of knowledge for the modern Python development stack, including project management (Poetry), type checking (MyPy), and linting + code formatting (ISort, Black).
- Presented a lunch-and-learn on the fundamentals of unit testing in Python (PyTest).

**Graduate Student Researcher – University of Cincinnati – Cincinnati, OH**          Aug 2019 — May 2021
- Researched extensions to CNNs to improve data efficiency and generalization in small datasets (PyTorch, detectron2).

**Software Engineer (Computer Vision) – Kroger Technology – Blue Ash, OH**          Jun 2018 - Aug 2019
- Developed computer vision solutions to business problems: backend services enabling applied image processing and deep learning/convolutional neural network (ResNet, Faster/Mask R-CNN, SSD/YOLO) methods.
- Assisted in creating an out-of-stock detection solution to help solve a $100M+/year problem for the business; prototype was being trialed in several stores after a few weeks. Based on deep learning techniques, our image-based system outperformed a long-running data science-based effort in both precision and recall metrics.
- Developed highly configurable services for bulk image collection and upload from store locations (Python, Java) as well as tag detection and identification in camera views (Python, Flask, Gevent, OpenCV, Aruco).
- Authored Docker files to set up team's development/training environments for deep learning models.

## education

**University of Cincinnati, CEAS - BS Electrical Engineering (Magna cum laude, 3.81/4.00)**          Class of 2018

## other experience

**Cloud Computing Class Project – Fantasy Football** - https://github.com/sean-rice/cs6065_homework2          **Fall 2020**
Implemented a basic Fantasy Football web application in C# and ASP.NET with user registration, player statistics, roster building, and a specified scoring system. Project leveraged Azure cloud services for the application server (Azure App Service), SQL database (Azure SQL), and continuous integration/deployment (Azure DevOps).

**Bachelor's Degree Senior Design Project – Autonomous Drone Delivery**          **2017 – 2018**
Created an autonomous delivery drone controlled via a mobile app (JavaScript/React Native) that communicated with backend Django cloud server (AWS EC2) via REST API. Drone used Raspberry Pi to receive destinations via API, detect landing pad with image processing, and issue correction commands to the flight controller (Python, OpenCV, ROS).

**Software Engineer Co-Op – Northrop Grumman Xetron – Springdale, OH**          **Jan 2017 – Aug 2017**
- Created a new, custom cyber product from scratch (x86 assembly, C) in five months on a team of four.
- Collaborated with other co-ops and FTEs on an IRAD devoted to testing the security of a custom Linux OS.
- Wrote and edited technical documentation for both software and hardware projects.