

# NICHOLAS GARDNER

## Software Engineer

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in nicholasgardnerRIT

## EXPERIENCE

### Machine Learning Engineer Co-op

#### Golisano Institute for Sustainability

📅 August 2020 – Present

📍 Rochester, NY

- Implemented a complete system for LED health assessment from images of printed circuit boards, using OpenCV and PyTorch, that achieved over 95% accuracy on validation data.
- Designed machine learning models for gear prognostic health monitoring using PyTorch, Keras/Tensorflow, and Sklearn. Modeling achievements include accurate tracking of the progression of tooth damage with some small success in prediction as well.
- Created a system for localization and health assessment of CT scans of solder joints, using OpenCV and PyTorch.
- Designed and implemented a genetic algorithm to explore hyperparameter space for asymmetric auto encoders. This search algorithm, which was implemented in parallel to improve model training efficiency, more quickly converged to optimal values and allowed for analysis of broad model trends.
- Utilized software design principles to build and redesign internal libraries.

### Computational Software Algorithm Development Co-op

#### Spectral Sciences, Inc.

📅 August 2021 – December 2021

📍 Burlington, MA

- Designed and implemented data reader classes for atmospheric datasets.
- Created custom interpolation to combine datasets for integration into SSI's Standardized Atmospheric Generator (SAG).

### Data Analysis Intern

#### Scripps Institute of Oceanography

📅 June 2018 – August 2018

📍 San Diego, CA

- Created a web scraper to search through publisher's websites and find articles related to GO-SHIP cruises utilizing a machine learning element with sklearn.

## PROJECTS

### PCB Identification and Assessment

#### Thesis Project

📅 August 2022 – Present

- Currently designing and implementing an end-to-end computer vision and machine learning system to identify part numbers on printed circuit boards and assess different kinds of damage in partnership with the electronics remanufacturer, CoreCentric.

### Gym Tracker

#### Personal

📅 October 2022 – Present

- Scrapes RIT's facilities website to display current and historical gym occupancy. Uses Google Cloud Run to automate scraping with BeautifulSoup4, Google Firebase to store data, and a Plotly Dash Flask app hosted on Heroku to render.

## SUMMARY

5th year computer science BS/MS student at RIT, graduating in December 2023, interested in a co-op position for summer 2023 and / or a full-time position starting in spring 2024.

## EDUCATION

### M.S. Computer Science

#### Rochester Institute of Technology

📅 January 2023 – December 2023

### B.S. Computer Science

#### Rochester Institute of Technology

📅 August 2018 – December 2022

GPA:3.78

## SKILLS

Python Java C/C++ PyTorch  
Tensorflow Keras Scikit-Learn  
OpenCV Matplotlib NumPy  
Pandas SciPy SQL Git Unix  
Google Cloud AWS Heroku

## COURSEWORK

- Introduction to Computer Vision
- Advanced Computer Vision
- Introduction to Artificial Intelligence
- Introduction to Machine Learning
- Biologically-Inspired Intelligent Systems
- Principles of Data Mining
- Analysis of Algorithms
- Foundations of Networks
- Principles of Data Management
- Introduction to Software Engineering
- Concepts of Parallel and Distributed Systems