

# Drew Bodmer

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## Education

**Northeastern University, Khoury College of Computer Sciences** Boston MA *September 2017 – May 2022*

*Candidate for a Bachelor of Computer Science, Minors in Math, Physics*

**Honors:** Northeastern Honors Program, Dean's List, Joel Goldenberg Memorial Scholarship

**GPA:** 3.64/4.0

**Coursework:** Software Engineering, Object-Oriented Design, Algorithms & Data Structures

## Skills

**Languages:** Python, TypeScript, Racket, Java, C, AMD64 + MIPS assembly, SQL

**Technologies:** TensorFlow, PyTorch, Scikit-Learn, Docker, Kubernetes, MongoDB, Jupyter, Git, Linux, Bash

## Experience

**Levee Industries** Boston, MA

*July 2021 – Present*

*Software Engineer*

- Operating effectively on a small team to tackle complex problems ranging from software architecture to investor relations and product development
- Conducting in-depth technical research and documentation on the capabilities of healthcare technology
- Constructing custom visualization and data generation scripts in Python and JavaScript for demonstrations

**SICA Lab** Boston, MA

*December 2021 – August 2021*

*Research Assistant*

- Constructed computer-vision models in PyTorch for object detection and localization
- Implemented robust data-wrangling scripts to properly reformat and augment image datasets
- Created detailed documentation to enable others to easily replicate the processes

**MORSE Corp.** Cambridge, MA

*July 2020 – December 2020*

*Python Software Engineering Co-op*

- Performed extensive updates to proprietary evaluation software to evaluate new metrics on existing models
- Implemented complex data wrangling scripts in pySpark to service new features for the evaluation software
- Elucidated popular computer vision metrics such as F1 score, mAP, and Track Fragmentation for clients through detailed documentation

## Projects

**DCGAN Clothing Generator**

*December 2021 – February 2022*

- Utilized TensorFlow-Keras to create a Deep Convolutional Generative Adversarial Network (DCGAN) in Python to create accurate images of clothing
- Trained the model on a Keras MNIST-fashion dataset of 60,000 images to generate realistic images of clothing

**YOLOv3 Kubeflow Object Detection**

*January 2021 – August 2021*

- Applied transfer learning to achieve mAP > 0.9 and F1 > 0.95 for single-class object detection on test data
- Created and batch-loaded a database of over 12,000 images from several sources, decreasing the memory required for training by over 80%
- Modified the base YOLOv3 output tensor to allow for fusion with another object detection model while maintaining inference with > 15 FPS
- Deployed the project into Kubeflow Pipelines, allowing for modular adjustment of each section of the pipeline

**Recurrent Neural Network for Text Generation**

*March 2020 – June 2020*

- Built a Recurrent Neural Network in Python without ML libraries, implementing the original algorithm
- Created an LSTM using the Keras Sequential API trained on over 3-million-character sequences
- Trained both models on UC Irvine's News Aggregator dataset, which contains 422,000 news headlines

**Deep Neural Network to Recognize Handwritten Digits**

*December 2019 – March 2020*

- Created and trained a neural network in Python on the 60,000 images in the MNIST digit classification dataset
- Manually implemented the feedforward and backpropagation algorithms used to train the network
- Attained a classification accuracy of 94% on a test dataset using a 60/20/20 train/val/test split