Tabitha Oanda

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github.com/TabithaKO
Personal Website

Education

- **Boston University** — May 2022
  Bachelor of Arts in Computer Science: GPA 3.54 — *Boston, MA*
- **Wheaton College** — Sep 2018 - May 2019
  Bachelor of Arts in Computer Science: GPA 3.7 — *Boston, MA*

Research Experience

- **Research Intern: Computer Vision** — June 2022 - Current
  Microsoft Research — *Redmond, WA*
  - Design and perform experiments to test the robustness of a neural radiance fields (NeRF) models
  - Read through academic publications to familiarize with the subject matter
- **Research Assistant** — Sep 2021 - May 2022
  Boston University — *Boston, MA*
  - Designed a project that uses a custom trained Generative Adversarial Network to improve the visual quality of synthetic images
  - Trained an autoencoder to get the feature representation of the image data in lower dimensions
  - Read through academic publications to familiarize with the subject matter
  - Wrote and submitted an academic paper to a conference focused on fairness and bias in AI
- **Directed Study** — Jun 2021 - Dec 2021
  Boston University — *Boston, MA*
  - Designed a project aimed at improving the performance of Generative Adversarial Networks (GANs) on images of Black People
  - Scrapped and pre-processed images from a search engine to create an image dataset of Black female and male celebrities faces
  - Applied transfer learning to the StarGAN architecture to create a custom GAN model
  - Presented a guest lecture at a at a Deep Learning class at Boston University
- **Student Intern** — Sep 2020 - Dec 2020
  Cai Lab, Harvard University — *Boston, MA*
  - Cleaned and formatted datasets containing medical records from large databases like MIMIC and public online sources
  - Trained computer vision machine learning models for disease diagnosis classification
- **Research Assistant** — Jun 2020 – Aug 2020
  Economo Lab, Boston University (UROP) — *Boston, MA*
  - Applied TensorFlow and Keras to develop a series forecasting model which predicts the expected position of a lab rat in video data.
  - Analyzed video data from lab experiments using 3 different deep learning software: DeepLabCut, DeepPoseKit and Animal Part Tracker
  - Presented my research during the UROP virtual symposium

Self-directed Projects

- **Computer Vision Controlled Robotic Arm** Aug 2020 – Aug 2021
  project link *Boston, MA*
  - **Skills** Python, C, Arduino, Keras, TensorFlow, Git
  - Designed a C program to control 3 servos synchronously via an Arduino
  - Designed code to collect the 2D coordinates of the arm's keypoints from video frames and translated the coordinated to the robotic arm's servos
- **Computer Vision Controlled Self-driving Toy Car** Jun 2020 – Aug 2020
  project link *Boston, MA*
  - **Skills** Python, Swift, Xcode, CreateML, Keras, TensorFlow, Git
  - Developed a custom object detection model using TensorFlow to detect 3 unique traffic signs on a webcam
  - Developed a traffic sign detection app using CreateML and Xcode that works with live camera feed
  - Configured a preexisting object detection Python script to incorporate distance data from a ultrasonic sensor
  - Collaborated with Raspberry Pi developers through platforms like Instagram and Twitter for troubleshooting purposes
- **Soft Robotic Hand** Dec 2020 - Sep 2021
  project link *Boston, MA*
  - **Skills** Shapr3d, Arduino, Raspberry Pi, Git
  - Designed the phalanges of the hand via CAD and 3D printed the pieces
  - Designed the silicone molds that flex and extend to control finger movement
  - Wrote the Arduino code to control 6V air pumps for actuation
- **Hairstyle Detector** Aug 2020
  project link *Boston, MA*
  - **Skills** Swift, CreateML, IBM Cloud Annotations, Xcode, Instagram marketing, Git
  - Developed a custom object detection model using transfer learning to detect 13 unique Black Women hairstyles
  - Programmed the iOS application to show the object label, prediction accuracy, and bounding boxes
  - Promoted the application to over 2000 people using Instagram hashtags to inspire other women of color developers

Teaching Experience

- **Course Grader: Artificial Intelligence(CS 440)** Sep 2021 - Dec 2021
  Boston University *Boston, MA*
  - Prepare assignment grading rubrics and grade students assignments
  - Respond to student's assignment related queries on the learning platform Piazza
- **Program Coordinator AI4ALL** Aug 2021
  Boston University *Boston, MA*
  - Prepared and presented lectures on machine learning concepts
  - Conducted workshops on Python programming
  - Designed a simple generative adversarial network (GAN) project for the students to implement at the end of the program
- **Teaching Assistant (Data Science in Action Summer Program)** Jun - Jul 2020, 2021
  Department of Biostatistics, Harvard University *Boston, MA*
  - Created tutorial videos to teach Python, Linux bash commands and Raspberry Pi troubleshooting techniques
  - Contributed 3 documented Jupyter Notebooks of solutions to Python programming exercises and convolutional neural network tutorials
  - Created ten hands-on remote control car assembling videos

Honors and Awards

- Boston University Scarlet Key Honor Society (Fall 2021)
- Boston University Dean's List (Spring 2021)
- Undergraduate Research Opportunities (UROP) Grant (Summer 2020)
- Featured Researcher UROP (Summer 2020)

Guest Talks

- **Summer 2021** Guest Lecture: Boston University Deep Learning Course (CS 523)
- **Spring 2021** Computer Vision Workshop: Code For Africa
- **Spring 2021** Arduino Day: Featured Community Member
- **Summer 2020** Undergraduate Research Opportunities Program Symposium
- **Summer 2020** Nairobi Women in Machine Learning and Data Science

Professional and Outreach Activities

- **Lead Ambassador and Co-Founder** July 2020 - Dec 2020
  The STEM Archive *Remote*
  - Lead monthly discussions and research on suitable discussion topics within the STEM disciplines
  - Expanded the membership to over 40 undergraduate women in STEM within the first month