Adeeb Abbas

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Work Experience

- **Amazon Robotics** July. 2022 - present
  Software Engineering Intern - Advance Robotics North Reading, MA
  - Built the complete software stack (Kotlin, Python and C++) for an exploratory project team under the Robotics Manipulation Group
  - Modeled various robots and using internal simulation tool for writing motion planners and perception utilties
  - Used various state of the art models for transfer learning and improving segmentation performance for robotic manipulation for Amazon Grocery Fulfilment
  - Research and development of instance segmentation models for Amazon Fresh using NLP inspired networks like transformers

- **Toyota Research Institute** Sept. 2021 - March 2022
  Robotics Software Engineering Intern, Dexterous Manipulation Cambridge, MA
  - Built a Voxel Occupancy Visualizer and Bounding Box stability tracker for a bi-manual robotic system, Punyo
  - Wrote a controller in C++ for robotic manipulation for a 10 DOF dual arm robot using Drake
  - Perception based dual-arm object grasping and manipulation controller in C++ for Punyo (14 DOF system)
  - Monocular SLAM with OpenCV and C++ for a mobile robot

- **Department of Computer Science, Drexel University** Sept. 2020 - March 2021
  Software Engineering and Research Co-op Philadelphia, PA
  - Proposed new methods for feature engineering for raw IQ data and used residual networks to produce state-of-the-art results of modulation recoginition (upto 10% better than existing models), later synthesized into a conference paper.
  - Built data input and preprocessing pipelines using Tensorflow to bring down memory use down 128 GBs to 8 GBs.
  - Used GNURadio's Python API to create a framework to perform both simulated and over-the-air (OTA) raw IQ data collection for experimentation

- **Drexel Wireless Systems Lab** June 2019 - August 2021
  Undergraduate Research Associate (Part-time) Philadelphia, PA
  - Managed and worked on VarIOT, a university wide IoT data collection hub/server, wrote Python and Node JS code for data collection from sensors and various client hubs
  - Dockerized and deployed images of web applications for VarIOT for rapid testing and prototyping
  - Created light weight machine learning models for wearable devices to tackle Deep Vein Thrombosis.

- **Susquehanna International Group (SIG), LLP.** Sept. 2019 - February 2020
  Software Engineering Co-op Bala Cynwyd, PA
  - Designed and developed applications in an Agile environment in .NET Core/Framework and Python used to visualize market data coming from various handlers such as Bloomberg Multicast.
  - Fixed bugs in internal software/tools that were heavily used by traders and analysts.
  - Automated deployments using tools such as Teamcity and Octopus Deploy.
  - Developed applications to track the entitlements for optimising the number of Bloomberg Subscriptions.

Education

- **Drexel University** Philadelphia, PA
  *BS in Computer Engineering; GPA: **3.78**/4.00 (Dean's List)* 2018 – 2023

Skills

- **Programming/Scripting Languages**: C++, C, C#, Python, Bash/Zsh
- **Frameworks**: ROS, Drake, Tensorflow, PyTorch, Django, Flask, Docker

Publications

Adeeb Abbas, V. Pano, G. Mainland, K. Dandekar, **"Radio Modulation Classification Using Deep Residual Neural Networks"** in Proceedings of the IEEE Military Communications Conference (MILCOM, 2022)