Adeeb Abbas

Github LinkedIn DevPost

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Education

Drexel University — Philadelphia, PA
BS in Computer Engineering; GPA: 3.78/4.00 (Dean's List) — 2018 – 2023 (Expected; 5yr - 3 Co-op)

Skills

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

Work Experience

- **Amazon Robotics** — July. 2022 - present
  Advance Robotics Research Intern — North Reading, MA
  - Built the complete software stack (Kotlin, Python and C++) for an exploratory project under the Robotics Manipulation Group
  - Modeled various robots and using internal simulation tool for writing motion planners and perception utilties
  - Research and development of state-of-the-art instance segmentation models for Amazon Grocery Fulfilment

- **Toyota Research Institute** — Sept. 2021 - March 2022
  Robotics Research Intern — Cambridge, MA
  - Built a Voxel Occupany Visualizer and Bounding Box stability tracker for a bi-manual robotic system, Punyo
  - Wrote a controller in C++ for robotic manipulation for a 5 DOF (per arm) dual arm robot using Drake
  - Perception based dual-arm object grasping and manipulation controller in C++ for Punyo (7 DOF per arm)
  - Monocular SLAM with OpenCV and C++ for a mobile robot

- **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.
  - Worked on a probe positioner and made its movement accurate by enhancing the controls to automate the millimeter wave experiments in the lab.

- **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.
  - Automated deployments using tools such as Teamcity and Octopus Deploy.
  - Developed applications to track the entitlements for optimising the number of Bloomberg Subscriptions.

- **Department of Computer Science, Drexel University** — Sept. 2020 - March 2021
  SDR Software Engineering 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

Publications

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