ASHWIN RAVINDRA BHARADWAJ

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EDUCATION

Northeastern University, Boston, MA *Sept 2023 - Current*
Master's in Artificial Intelligence - 4.0/4.0

PES University, Bangalore, Karnataka, IN *Jul 2017 - Jun 2021*
Bachelor of Technology in Computer Science and Engineering - 8.89/10
Twice recipient of CNR Rao Merit Scholarship (2017 and 2018)

SKILLS

- **Languages**: C, C++, GoLang, Python, Java, React, JS
- **Tools**: Git, Tensorflow, Keras, Docker, Kubernetes, Grafana, MongoDB RasberryPi

WORK EXPERIENCE

Cisco Systems, Bangalore *Jan 2021 - Aug 2023, Software Engineer*
- Built a telemetry system for servers that allows users to control/configure/monitor servers remotely called "Intersight". Worked on the back-end/frimware/UI of the product.
- Wrote firmware for embedded micro controllers such that they can configure attached servers remotely.
- Decreased deployment time by auto generating mocks and utilities functions using python.
- Developed efficient multiprocessing frameworks in GoLang for processing data from multiple sources and persisting them in a DB at scale.

Microsoft Innovation Lab, Bangalore *May 2019 - Aug 2020, Intern*
- Mentored a team to develop a web app that aided in the understanding of concepts in data structures and AI
- Worked with a group of peers to develop a model that could associate artistic depiction of South Asian mythology with their description in the holy texts.
- The model used a myriad of Neural network models aided by a graph-based algorithm to gather information from the images.

ACADEMIC PROJECTS

- **Smooth body hydrodynamics using ML** *Feb 2024 – Current*
  - Currently developing a graph neural network to simulate the physics of a fluid in a container.
  - Developed a new technique involving a feedback loop that helps the ML model learn faster, this reduces the difference between the actual simulation and the predicted ML output.
- **Spatially Handled Arm Projectile EvadeR (SHAPER)** *Oct 2023 - Dec 2023*
  - Developed an algorithm to train agents using a genetic algorithms to control simulated robot arms to perform various tasks.
  - Developed a new technique to train genetic algorithms quicker using multiple scoring function to simulate biological learning.
- **Video Photogrammetry** *Jan 2021 - May 2021*
  - Build a system from scratch that converts a video taken with an ordinary camera to a point cloud that could be interacted with by the user.
  - Two approaches were explored, firstly using ML (U-net model with transfer learning) and secondly using stereoscopy aided by environmental cues.

OTHER NOTABLE PROJECTS

- **MBTA Bus Tracker** *Jan 2024*
  - Built a simple website to track the buses operated by the MBTA.
  - The main focus of the website is give accurate location of all buses in the Boston area.
  - Uses the MBTA-V3 APIs to track the location of the buses and the stops. Also provides estimated time of arrival.
- **Snoopy (Robot Dog)** *Jul 2020 – Dec 2020*
  - Designed and 3D printed a small robot dog based on the ”Spot” robot dog made by Boston Dynamics using smaller brushed servos.
  - Wrote firmware for the bot such that the dog can be level regardless of the surface.
- **Mars Helicopter (Prototype)** *Oct 20 – Dec 2020*
  - Designed and 3D printed a small version of the Mars helicopter with counter rotating propellers.
  - Wrote a simple PID loop to help it stay level when flying.
- **Virtual Reality Glove** *Jan 2019 – Mar 2019*
  - Built a glove that collects the orientation of the hand and the positions of the fingers using an IMU and potentiometers and relays the data to a computer over Bluetooth to enable the user to control the cursor or characters in video games.
  - Compatible with games made on the Unity engine.
- **Long range FPV UAV** *Jan 2019 – Dec 2019*
  - Designed and built a long range fixed wing UAV based on the real world RQ-7.
  - Developed new techniques to 3D print very light weight yet strong parts used for the V-tail system.

PUBLICATIONS

A. R. Bharadwaj, S. S. Chandra, D. S. Nair, A. R. Hatim and A. Ravikumar, “Automated mythological scene recognition using machine learning and graphs”, 2020 International Conference on Artificial Intelligence and Signal Processing (AISP), Amaravati, India, 2020, pp. 1-5, Jan 2020.

Ashwin R. Bharadwaj, Hardik Gourisaria, Hrishikesh Viswanath, “Video Frame Rate Doubling Using Generative Adversarial Networks”, Computer Communication, Networking and IoT (ICICC 2020), Bengaluru, India, Aug. 2020