ASHWIN RAVINDRA BHARADWAJ

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EDUCATION

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

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

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

WORK EXPERIENCE

Cisco Systems, Bangalore *Jan 2021 - Aug 2023, Software Engineer*
I worked on a product called "Intersight". As part of the project worked with GoLang, Python and C++. Wrote firmware for some servers such that they can be configured remotely. Built simple automated systems that will generate Golang code using Python to speed up the development pipeline. Most of the project involved working with muti threading and asynchronous code that made our application faster. Developed efficient muti processing frameworks for processing data from multiple sources and persisting them in a DB at scale. Also, worked on a small side project that would use the data regarding the microservices to predict when compute resources need to be increased to avoid a resource shortage. This helped in preventing service outages.

INTERNSHIPS

PES Innovation Lab, PES University *May 2020 - Aug 2020, Project Mentor*
- Mentored a team of juniors to develop a web app that aided in the understanding of basic concepts in data structures and algorithms
- Worked with Python and Flask for the back end and React JS for the front end.
- Taught basic concepts of the Client-Server model and REST-based APIs to the interns.

Microsoft Innovation Lab, Bangalore *May 2019 - Aug 2019, Intern*
- 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.

Quantum Electronics Lab, PES University *May 2018 - Aug 2018, Intern*
- Helped in setting experiments involving non-linear optics such as frequency doubling using KTP crystals and diode pumping.
- Worked on code that would estimate parameters needed for the experiments and control various actuators for precise positioning of lenses. - Worked on a closed-loop control system that attempted to minimize the vibrations of the machinery by reading the current vibration and countering it by injection matching vibrations via the actuators.

NOTABLE UNDERGRADUATE PROJECTS

- **Video photogrammetry** *Jan 2021 - Present*
  - A project 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.
- **Algorithm Visualizer** *Jan 2020 – March 2020*
  - A web application that allowed users to visualize various AI-based graph search algorithms like BFS, DFS, Uniform cost search, A*, Branch and bound, etc. The user had the ability to make custom graphs and set weights and heuristics to help them understand each step of the algorithms.
- **DBaaS** *Jan 2020 – Mar 2020*
  - Database as a Service. The project was intended to create a layer above IaaS but below SaaS to help users deploy their apps without worrying about the database aspect. The system was crash tolerant and had an auto-scale feature based on the load on the system.
- **Distributed Computing** *(Sep 2019 – Dec 2019*
  - A simple system that divided repetitive large tasks among various compute nodes to maximize throughput while balancing work for all nodes on the system.
- **Genetic Neural Network** *Sep 2019 – Dec 2019*
  - Developed a genetic algorithm that trains a neural network and avoids local minima by using simulated annealing. This algorithm was used to determine the truthfulness of statements from individuals given parameters such as perspiration, eye movement, etc.
- **Virtual Reality Glove** *Jan 2019 – Mar 2019*
  - Developed 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.

CO-CURRICULAR ACTIVITIES

- **PES Hackathon** (February 2020): Developed a novel model that can double the frame rate of videos. The project involved machine learning and computer vision.
- **E-yantra IIT-Bombay** (August 2018 – Feb 2019): Built an autonomous ground robot to re-enact the story of the thirsty crow. The project involved path planning, computer vision/graphics, and inverse kinematics.
- **NMIT RC Plane** (February 2019): Built a self-leveling RC Plane in 24 hours. The project involved CAD, design/programming the flight controller, and construction of the plane.
- **KNMIT Robot Wars** (February 2019) Placed 3rd in a robot wars competition.

EXTRA-CURRICULAR ACTIVITIES

- Helped in organizing Hackathons conducted by Microsoft Innovation Lab at PES in 2019.
- Assisted in organizing Science fest and competitions in 2017 at PES University.
- Worked at a community center to provide free eye exams to patients from low-income backgrounds.
- Worked at ”ScienceUtsav” as teacher to promote STEM concepts to children.

TECHNICAL SKILLS

Programming Languages : C, C++, Python, Go, JavaScript
ML Frameworks : Tensorflow, Keras
Tools : Git, OpenCV, OpenGL, Open3D, AWS, LaTeX
Hardware : Arduino, Rasberry Pi