Paritosh Borkar Rochester, New York
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Level headed & a go-getter; will excel in a competitive environment. Open-minded, comfortable working as part of a team as well as independently in a research environment.

Education

Rochester Institute of Technology **Rochester, New York**
Master of Science in Computer Science *Aug 2020*
Courses: Introduction to Machine Learning, Pattern Recognition, Advanced Computer Vision

Indian Institute of Technology, Bombay **Mumbai, India**
Bachelor of Technology in Engineering Physics *Dec 2017*
Courses: Linear Algebra, Advanced Calculus, Numerical Analysis, Differential Equations, Quantum Mechanics

Skills

Software Technologies: AWS Lambda, OpenCV, Pandas, Numpy, Alexa Skill Kit, Git, OpenGL, LaTeX, Blender
Languages: Python, Java, C++

Projects

Handwritten Math Symbol Classification *Spring 2020*

- Classified a dataset of handwritten math symbols with a **KD-Tree** and an **SVM** with a Gaussian kernel from scikit-learn.
- Trained on a dataset of **150,000 symbols** and 101 labels including junk symbols, with the coordinates of the traces of each symbol stored in an inkml file.
- Pre-processed and cleaned the training data by removing duplicate points, interpolating between consecutive points at a fixed distance and removing redundant points by angular difference, referring to the research paper "Preprocessing techniques for online handwriting recognition" by B.Q. Huang and Y. Zhang.
- Extracted a total of **99 features** from scratch which included global features, crossing features, and fuzzy membership features.
- Achieved an accuracy of **82.02%** for the SVM on an unseen dataset of 18,000 symbols.

AWS DeepRacer Challenge (Reinforcement Learning) *Spring 2020*

- Participated in an inter-college autonomous vehicle racing competition hosted by Eagleview, at RIT. arriving at the 3rd position. Collaborated with a group of 6 students to successfully train an autonomous vehicle using the AWS DeepRacer service.
- Trained the car by writing a reward function that was a combination of the position of the waypoints on the track, as well as the orientation of the car with the track.

Ensemble Learning in Gradient-free Optimization Algorithms *Spring 2019*

- Designed a new optimization algorithm with an ensemble of nature-inspired algorithms. The motivation was to run these algorithms concurrently and select the best outcome at each step.
- Used a combination of Differential Evolution, Particle Swarm Optimization, Firefly Optimization, Flower Pollination Optimization, and Cuckoo Search.
- Created a framework for parameter sharing between the optimization algorithms. The Ensemble Learner chose the best possible set of parameters at each stage.
- Outperformed other individual algorithms both in terms of speed and accuracy.

Experience

Software Development Engineer Intern, Amazon *Summer 2019*

- Worked with the Audio Advertisement team at Amazon, Austin.
- Successfully increased Amazon's brand value for delivering ads and created a tool for demonstrating the Audio Advertising team's services.
- Satisfied the business requirements of Amazon's account executives by creating an Alexa skill with an AWS Lambda function. The skill allowed the customer to preview any audio advertisement on any Alexa enabled device.
- Wrote well-maintained code in Java using Agile development standards, which underwent frequent code reviews.
- Created an AWS Cloudformation stack to handle the infrastructure of the endpoint of the Alexa skill.
- Created a JAX-RS client that talked to one of the public endpoints of the Amazon Ad eXchange(AAX).
- Implemented an AWS S3 bucket for storing the mappings from the user's utterance to the ad ID.
- Presented my work on a bi-weekly basis to my manager and other teams along with their interns. Also presented a final document at the end of the internship.