AHALYA MANDANA

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EDUCATION

Northwestern University *anticipated graduation: December 2018*
M.S. in Robotics, **CGPA: 3.708/4**
Relevant coursework: *Machine Learning, Deep Learning, Reinforcement Learning, Human Computer Interaction*

M.S. Ramaiah Institute of Technology *June 2017*
B.E. (Bachelor of Engineering) in Electrical and Electronics Engineering, **CGPA: 8.59/10**

PROJECT WORK

Day Zero Predictor *May - June 2018*

- Developed a predictive tool along with a team member for the EECS-349 Machine Learning final project. Goal of the website was to provide predictions for 'Day Zero' (date when a particular country will run out of water) to raise awareness about depletion of water resources around the world.
- The data was collected from AQUASTAT using Pandas. Attributes such as annual precipitation, total renewable water resources/capita, total land under cultivation were considered while compiling the dataset.
- Dataset was enhanced by adding new attributes such as rainwater harvesting awareness of a country. Using Weka (a machine learning software package), a predictive model was built with the KStar algorithm to use these attributes to make a prediction for water stress level of a country.
- Scikit-learn was utilized to perform logistic regression on the resulting data to obtain Day Zero information.

AceASL, the Sign Language App for Kids *January-March 2018*

- Designed an app to teach children sign language using OpenCV and the open source machine learning framework, TensorFlow. Transfer learning was used to retrain a model that had been trained on the ImageNet Large Visual Recognition Challenge dataset. Programming language used was Python. 3D graphics are used to teach the signs, and app detects correct American Sign Language signs with high accuracy.

Behavioral Tracking App *January-March 2018*

- Our team of four designed a web application for our Human Computer Interaction class - an app to minimize stress levels by sorting activities/hobbies into ones with positive/negative impact on stress levels. Design principles of usability and consistency were followed, and HTML, CSS and Javascript were used.

Baxter the Laundry Assistant *December 2017*

- Final group project for ME-495 Embedded Systems in Robotics - to perform a task with the Baxter research robot from Rethink Robotics. Wrote custom ROS nodes/services to make the Baxter research robot thread/unthread the lid of Tide bottle. Custom ROS subscribers/publishers were created to collect pose data of the lid, to send to the arm. Project also included AR tag tracking, quaternion multiplication, and inverse kinematics.

WORK EXPERIENCE

Caterpillar Inc. *Chicago, Illinois*
Part-Time Analytics Intern *June - September 2018*

- Contributed to an ongoing project with Robot Operating System (ROS) tools for visualization and simulation capabilities. Developed a URDF (Unified Robot Description Format) file for a hydraulically actuated arm to represent it with revolute joints.
- Skills involved: extensive usage of the ROS TF package, utilization of Rviz features for visualization of point cloud data, incorporation of ROS plugins for sensors in Gazebo (stereo camera sensor plugin), usage of 3D mesh-editing tools (Blender, MeshLab), Python programming for custom ROS publishers and subscribers.

Electronics For You Group *Bangalore, India*
Summer Intern *June - July 2016*

- Internship involved writing articles based on expert talks from 'India Electronics Week 2016', interacting with industry experts to gather input for articles for the *Electronics Of Things* portal and 'Electronics For You' print magazine. Fields covered: Bluetooth Low Energy/Bluetooth Beacon Applications, Interoperable IoT Solutions, Renewable Energy Microgrids, Threat Perception and Attack Scenarios in Automotives.

PROGRAMMING SKILLS & SOFTWARE PROFICIENCIES

C	Python	TensorFlow	Weka	OpenCV
MySQL	JavaScript	Mathematica	MATLAB	Git
Linux	ROS	Scikit-learn	HTML	CSS