# Ramya Banda

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## OBJECTIVE
Seeking a full-time job opportunity in the field of Machine Learning / Data Science

## EDUCATION
**Purdue University, West Lafayette, IN**                                                                                    **May 2020**
Master of Science in Electrical and Computer Engineering
**SRM University, India**                                                                                                              **May 2017**
Bachelor of Engineering, Major in Electrical Engineering

## TECHNICAL SKILLS
Programming Languages: Python, C++, Matlab, SQL, C
Frameworks and Platforms: PyTorch, Keras, Tensorflow, Caffe, Matplotlib, Numpy, Scipy, Jupyter Notebooks
Simulation Tools: Gem5, Multisim, Xilinx

## RELEVANT PROJECTS
**One-Shot Learning with a Neural Turing Machine | GitHub**
- Implemented state-of-the-art memory interfaced Neural Turing Machine for classification on the Omniglot dataset.
- Built using Tensorflow on Google Collab with a Tesla P100 GPU and achieved 98% accuracy.

**Various Adversarial Attacks and Defenses | GitHub**
- Implemented adversarial attacks such as Fast-Gradient Sign Method, Projected Gradient Descent, Carlini-Wagner and DeepFool and defended them using Denoising Autoencoders, Adversarial Training, PCA and Adversarial Detection respectively.
- Achieved attack accuracies as low as 0.99% and defense accuracies up to 97.74% on the MNIST dataset.

**Generative Adversarial Networks | GitHub**
- Implemented a Generative Adversarial Network (GAN) in Keras that generated MNIST like digits.
- Obtained discriminator accuracy of 40% and generator accuracy of 100%.

**Convolutional LSTM Deep Neural Networks**
- Constructed a DNN with convolutional and LSTM layers (CLDNN) in Keras for classification of time-series data from Deepsig's Radio ML dataset and achieved 92% testing accuracy.

**Human-Object Interaction**
- Built a Region-based Convolutional neural network using Caffe that detects humans, objects and their interactions using the HICODET dataset.
- Interactions are defined by an Interaction Pattern that characterizes the spatial relations between object and human bounding boxes.

**Dynamic Branch Predictor with Perceptrons**
- Constructed a Perceptron branch predictor using Gem5 simulator which produced small misprediction rates on comparison with Gshare and Bi-Mode predictors.

**Indoor Localization using RSSI Technique**
- Designed an RSSI based IoT tracking and monitoring system for GPS in-accessible locations ex. underground.
- **Publication:** "Indoor Localisation using RSSI Technique", Ramya Banda, Saranya N, Jyotsna M, International Journal of Advanced Research, Ideas and Innovations in Technology, May 2017.

## EXPERIENCE
**Purdue University**                                                                                          **November 2020 – Present**
- Built a ConvLSTM network that maps neural activity recorded through two photon imaging to behavioural attributes of mice like pupil dilation and running speed.
- Performed pose estimation on mice using DeepLabCut tools to track movements like walking and facial contortions.
- Analysis and preparation of electro-physiologically recorded neural data for machine learning models.

**Cognizant Technology Solutions**                                                                      **January – July 2018**
- Trained in SAP-ABAP to assist in Enterprise Resource Planning (ERP), which curtails managing resource logistics and streamlining company functions for the client, Sanofi.

**Spiro Solutions**                                                                                                      **Summer 2016**
- Implemented real-time face detection algorithms using image enhancement, image restoration, image analysis, and filtering in Matlab.

**Reliance Communications**                                                                                          **Winter 2014**
- Designed and deployed small scale network topologies using Cisco switches and routers to satisfy the design requirements of a data center aimed at telecommunication applications.