GAUTHAM KRISHNA GUDUR

Research Assistant

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EXPERIENCE

Research Assistant
Solarillion Foundation
Feb 2016 – Ongoing Chennai, India

- Leading a team of four to develop a Human Activity Recognition system robust to mobile-sensing heterogeneities using Deep Learning.
- Developing a real-time Occupancy Prediction engine for a show in collaboration with one of the top 3 movie multiplex chains in India.
- Led a team of five and worked on a Dynamic Gesture Recognition system using accelerometers with Machine Learning approaches.

Teaching Assistant
Solarillion Foundation
Jan 2017 – Ongoing Chennai, India

- Mentored students by helping them develop their approach towards problem-solving and taught them fundamental concepts in programming and embedded systems.

Undergraduate Student Researcher
SSN College of Engineering
Feb 2015 – Mar 2017 Chennai, India

- Worked on a funded HCI research project of Neurocinematics, where real-time cognitive responses of film viewers are captured using EEG.
- Worked on choosing the best-suited mote for two IoT scenarios, by analyzing their RPL performance metrics on a Contiki testbed.

PUBLICATIONS

Conferences

- **"HARNet: Towards On-Device Incremental Learning using Deep Ensembles on Constrained Devices."** Accepted at 2nd International Workshop on Embedded and Mobile Deep Learning (Co-located with ACM MobiSys 2018).
- **"A Generic Multi-modal Dynamic Gesture Recognition System using Machine Learning."** Presented at IEEE Future of Information and Communication Conference (FICC 2018), Singapore.
- **"Electroencephalography Based Analysis of Emotions Among Indian Film Viewers."** Presented at International Conference on Advanced Informatics for Computing Research (ICAICR 2017), Springer.
- **"Analysis of Routing Protocol for Low-power and Lossy Networks in IoT Real Time Applications."** Presented at 4th International Conference on Recent Trends in Computer Science & Engineering (ICRTCSE 2016), Procedia Computer Science, Elsevier.

Poster

- **"Neurocinematics: The Intelligent Review System."** Presented at 3rd International Conference on Cognition, Brain and Computation (CBC 2015), IIT Gandhinagar.

EDUCATION

B.Tech in Information Technology
Anna University (SSN College of Engineering)
Grad. Apr 2017 Chennai, India

Cum. GPA: 7.41/10 - First Class

HSC (Class XII)
DAV Higher Secondary School, Gill Nagar
Grad. May 2013 Chennai, India

Scored an overall of 94.25%

AISSE (Class X)
SBOA School & Junior College
Grad. May 2011 Chennai, India

Cum. GPA: 10/10

SKILLS

Programming

Expert Python | C | C++
Intermediate R | Java | HTML/CSS | JavaScript | PHP | Bash
Basic Android | SQL

Hardware & Software

Arduino | Raspberry Pi | LaTeX | Linux (Ubuntu) | Contiki OS | Octave | Git | Microsoft Office Suite

Tools & Frameworks

Numpy | Scipy | Pandas | Keras | PyTorch | Scikit-Learn | TensorFlow | NLTK | Flask | Weka | AWS

AREAS OF INTEREST

Machine/Deep Learning | IoT | Activity Recognition | Computer Vision | Gesture Recognition | NLP | Cognitive Computing

NOTABLE PROJECTS

Movie Occupancy Prediction Engine

Solarillion Foundation

Sep 2017 – Ongoing

Tools & Framework: Python | Pandas | MS-SQL | Scikit-Learn | PyTorch
Extracted nearly 10 TB of transactional data (over past 5 years) using AWS, structured them using MS-SQL & extracted behavioral features to forecast show occupancy of a movie. Currently working on deploying a beta application into production.

Intelligent Bus Stop Recognition System

Undergraduate Thesis, SSN College of Engineering

Jan 2017 – Apr 2017

Language & Platform: Python | Numpy | Anaconda | RaspberryPi Zero
Developed a recognition engine on a Raspberry Pi Zero platform that automatically identifies bus stops using images (dataset) acquired from cameras placed on a bus using a hybrid nearest-neighbor classifier.

Gest-Face

Personal Project

April 2017

Language & Framework: Python | OpenCV | HaarCascade | PyQt5
Developed a Gesture/Facial recognition system that can recognize gestures, as well as detect the number of faces of users in real-time. The system was rendered as an application using PyQt5.

Deep Learning Projects

Online Coursework & Kaggle

May 2017 – Ongoing

Language & Framework: Python | Numpy | PyTorch | Tensorflow

- Completed Stanford's graduate Deep Learning course CS231n: Convolutional Neural Networks for Visual Recognition, Udacity Deep Learning.
- Datasets used:
  - CIFAR-10 (CV)
  - notMNIST (CV)
  - Street View House Numbers (CV)
  - Text8 - Wikipedia (NLP)

Real-Time Sentiment Analyzer of Twitter Trends

Personal Project

Dec 2016

Language & Framework: Python | NLTK | Scikit-Learn | Tweepy | PyQt5
Implemented an application that gives the live Twitter trend graph of a tweet using an ensemble voting and a TextBlob classifier. The real-time mood (pos/neg) of the scraped tweets is presented to the user.

Speed Control of DC Motor using Arduino

Solarillion Foundation

Feb 2016

Platform & Hardware: AtMega328 | 12V DC Motor | IR Sensor
Devised a feedback based algorithm using Proportional controller to automatically self-stabilize the error between Reference speed and Measured speed (± 4 RPM) of a 12V DC Motor with external load.

COURSEWORK

Undergraduate

- Programming & Data Structures: I & II
- Operating Systems
- Database Management Systems
- Design & Analysis of Algorithms
- Artificial Intelligence
- Compiler Design
- Data Warehousing & Data Mining
- Grid & Cloud Computing
- Data Analytics

Online Certifications (MOOCs)

- **University of Washington | Coursera**
  Machine Learning Specialization (4 courses) | A Case Study Approach | Regression | Classification | Clustering & Retrieval
- **Stanford University | Coursera**
  Machine Learning
- **UC-San Diego | Coursera**
  Algorithmic Toolbox | Data Structures
- **John Hopkins University | Coursera**
  R Programming

ACHIEVEMENTS

Scholastic

- **97th percentile in HackerRank (Algorithms Domain)**
- Undergraduate **Financial Research Grant of INR 24,000** by College Management
- Certification of Merit for Grade A1 in all subjects in AISSE
- Top 10 percentile in 42nd National Mathematics Talent Competitions
- 86th percentile in 13th National Science Olympiad (NSO)

Non-Scholastic

- Division/State Badminton Player (Under-19)
- Event Organizer of "Data Nuggets" - a Data Science event, Invente2k16
- Completed all 10 levels of UCMAS Mental Arithmetic (Abacus)
- 29th Rank overall in Grade 3 Keyboard