Akhil Chandra Panchumarthi

US Citizen, Overseas Citizen of India

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Education

- **Massachusetts Institute of Technology (MIT)** — Cambridge MA, USA
  Semester Exchange Student, EECS Department, GPA 4.6/5.0 — *Spring 2019*
  - **Relevant Coursework:** Introduction to Machine Learning, Matrix Methods in Data Science and Machine Learning, Combinatorial Optimization
- **Indian Institute of Technology, Guwahati** — Guwahati, India
  Candidate for B.Tech in Computer Science and Engineering, GPA 9.07/10 — *2016 - 2020(expected)*
  - **Relevant Coursework:** Data structures, Algorithms, Software Engineering, Operating Systems, Computational Geometry, Discrete Mathematics, Probability and Random Processes, Computer Vision using Machine Learning, Parallel Computer Architecture

Experience

- **Big Data Experience Lab, Adobe Research India** — Bangalore, India
  Research Intern - Machine Learning, Distributed Systems — *Jun 2019 - Jul 2019*
  - Implemented predictive data cache warming for a large data dependent query handling distributed system, Designed and realized multiple sequence prediction models (Keras) using insights extracted from query logs focussing on LSTMs, Developed cache simulator(Python) to test effects of various such prediction models and relevant cache parameters
- **Tangible Media Group, MIT Media Lab** — Cambridge MA, USA
  Independent Lab Project with Joao Wilbert, Research Assistant, Tangible Media Group — *Feb 2019 - May 2019*
  - Developed a data pipeline(Sensor to PC) to efficiently collect time series data through Arduino Pyserial handshake communication protocol, Generated and classified texture based data using Dynamic Time Warping (DTW) as a similarity metric and K-Nearest Neighbors (KNN) as the classifier using scikit-learn

Research

- **Data Representation Survey (Bachelor's Thesis)** — *Ongoing*
  Dr. Amit Awekar, Associate Professor, Dept. of CSE, IIT Guwahati
  - Comprehensive survey of embedding based vector representation of data in various fields (word2vec, doc2vec, code2vec, image2vec, graph2vec, node2vec), Aims at putting together applications of embedding approaches over the different fields and understanding the main bottlenecks in generating and using such representations
  - Currently focused on possible applications to Github's CodeSearchNet Challenge of efficient code retrieval through natural language queries by extending principles presented in code2vec and code2seq

Projects

- **Inverted Pendulum Stabilization** — Feb 2019 - May 2019
  Dr. Gilbert Strang, Professor, Dept. of Mathematics, MIT, Cambridge MA USA — *bit.ly/2ktqmyH*
  - Control system designed to stabilize an inverted pendulum under the influence of unknown oscillatory disturbance through basis pursuit, Studied effects of (Gaussian) noise on stabilization time and convergence of predicted disturbance function in a MATLAB simulation
- **File Search Engine** — Jan 2018 - Apr 2018
  Dr. Santosh Biswas, Associate Professor, Dept. of CSE, IIT Guwahati — *git.io/fN4Cy*
  - Python based keyword and proximity search using TF-IDF and cosine similarity for large local documents, Keyword search used to rank documents and proximity search used to rank occurrences of keywords within ranked documents
- **Intelligent Faculty Webpage Generator** — Aug 2017 - Nov 2017
  Dr. Santosh Biswas, Associate Professor, Dept. of CSE, IIT Guwahati — *git.io/fN4Ce*
  - Dynamic webpage generator for easy webpage management(Django), web scraping used for collecting basic information from a professor's webpage (BeautifulSoup), webpage updates itself with details collected from emails
- **Fruit Nutrition Visualization App** — Jan 2018 - Apr 2018
  Dr. Samit Bhattacharya, Associate Professor, Dept. of CSE, IIT Guwahati — *git.io/fN0tS*
  - Android app developed through the SDLC Waterfall (iterative) model that identifies fruit and generates an augmented display of nutritional facts and potential hazards

Technical Skills

- **Programming Languages**: C, C++, Python, Java, VHDL, Prolog
- **Machine Learning Libraries**: Keras, Scikit-Learn
- **Web Technologies**: HTML, Django, JSP, Java Servlet API, Javascript
- **Database Management**: MySQL, Oracle, SQL
- **Miscellaneous**: Bash, MATLAB, Arduino, Android Programming, LATEX, git
- **Operating Systems**: Windows, Linux(Ubuntu)

Achievements and Extracurriculars

- **Joint Entrance Examination Advanced 2016**: Secured All India Rank 582 among 1.5 million candidates
- **SAT Subject Tests**: Scored perfect scores(800) in Math 2, Physics, and Chemistry SAT subject tests MySQL, Oracle, SQL
- **Sparda 2017, 2018**: Secured 4th place in both basketball 5v5 team events (Inter Hostel Sports Meet)
- **Member of CoS (2017-2018)**: Community Service member, organized Cyclothon 2017 and participated in various collection drives