Achyudh Ram

Contact Information

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Research Interests

Software Analytics, Information Retrieval
Machine Learning, Artificial Neural Networks

Education

Birla Institute of Technology & Science, Pilani

B.E. (Hons.), Computer Science, *Expected:* August 2018

- *GPA: 9.65/10.0 and Major GPA: 9.73/10.0*
- Top 1% of the university's students by GPA
- Thesis: *Assessing the reviewability and automating the evaluation of GitHub Pull Requests*
- Adviser: Prof. Alberto Bacchelli, TU Delft

M.Sc. (Hons.), Economics, *Expected:* August 2018

- *Major GPA: 10.0/10.0*

Teaching Experience

Teaching Assistant - Neural Networks & Fuzzy Logic *Jan 2017 – May 2017*
BITS F312 with Tirtharaj Dash, Department of Computer Science,
Birla Institute of Technology & Science, Pilani

Teaching Assistant - Data Structures & Algorithms *Jan 2017 – May 2017*
CS F211 with Dr. A. Baskar, Department of Computer Science,
Birla Institute of Technology & Science, Pilani

Work Experience

Student Researcher, SERG, TU Delft *Aug 2017 – Dec 2017*

- Worked on my senior thesis with the Software Engineering Research Group (SERG) on emperical software engineering
- Participated in courses on software analytics and software engineering methods

Software Developer Intern, Intuit Inc. *May 2017 – Jul 2017*

- Developed a data engine and a dynamic reports engine directly on top of the database
- Built an insights engine to provide forecasts and a variety of insights based on the data engine

Economic Research & Planning Intern, Indian Bank HQ *May 2015 – Jul 2015*

- Developed environment sensitive time-series forecasting models for setting business targets

Research Projects

Analysis framework for decoding online developer communities *Dec 2015 – May 2017*
Adviser: Prasad Talasila GitHub: github.com/achyudhk/Mailing-List-Network-Analyzer

- Analyzed author interaction through community detection in mailing lists and IRC channels
- Developed a text mining approach to identify topic experts and label communities
- Utilized visual aids to examine the activity and decode the structure of the developer communities

Fitness-aware brokering of hosted containerized environments *Jan 2017 – May 2017*
Adviser: Dr. Santonu Sarkar GitHub: achyudhk/Fitness-Aware-Container-Brokering

- Developed an integration agent that benchmarks and containerizes a SaaS catalog offering and a smart fulfillment engine that deploys it into the best-fit container out of a set of containers hosted on various underlying clouds

Novel feature selection using Fuzzy C-Means clustering *Feb 2017 – Apr 2017*
Adviser: Dr. Rajendra Roul GitHub: achyudhk/FCM-Feature-Selection

- Features were selected using cosine similarity scores on the semantic centroids calculated from the normalized term-term correlation based on clustering
- Selected features result in comparable F-scores for classification compared to MI and Chi^2

Semantic segmentation using a deconvolution network *Mar 2017 – Apr 2017*
Neural Networks Course Project Reference: arXiv:1505.04366

- Trained a deconvolution network to identify Red Blood Cells in an input image by predicting a binary segmentation mask

Video translation of American Sign Language gestures *Nov 2016 – Dec 2016*
Machine Learning Course Project GitHub: achyudhk/Sign-Language-Recognition

- Utilized hard negative mining, non-maximal suppression for localization and extracted histogram of gradients and local binary patterns as features
- Achieved an accuracy of ∼99% on localization and 96.8% on top-5 classification (IoU metric)

Identifying the trends in Indian Legislative issues using NLP *Aug 2016 – Dec 2016*
Adviser: Dr. Anoop Kumar GitHub: achyudhk/Parliamentary-Debate-NLP

- Identified the latent structures within the parliamentary debates using techniques like collocation finders, topic modelling, Ward clustering and multidimensional scaling
- Implemented the Rapid Automatic Keyword Extraction (RAKE) algorithm for key-phrase extraction

Miscellaneous Projects

- Feed-forward Neural Network library using computational gate approach supporting multiple optimizers, common activation and loss functions
- Implementation of state of the art Deep Learning papers on Google SVHN and MNIST datasets
- Implementation of machine learning algorithms like Support Vector Machines, Principal Component Analysis, K-means Clustering, Fuzzy C-means Clustering in Python
- Design and implementation of MIPS single-cycle, multi-cycle and pipelined architectures
- Network Topology Simulation and Analysis using Wireshark, NS2, NAM, xGraph and AWK
- Multi-user chat service using socket programming with multicast and broadcast messages
- FTP client and server using socket programming
- BibTeX Parser and Code Beautifier for C using LEX and YACC
- Weather monitoring station design and simulation using μ–processor programming and interfacing

Talks and Presentations

Department of Economics, BITS Pilani

- Monte-Carlo methods to assess the feasibility of biofuel production using simulation of economic models (Adviser: Dr. Rajorshi Sen Gupta) Nov 2015
- Cross country analysis of statistical models for assessing the effect of economic factors on insurance penetration (Adviser: Dr. Aswini Kumar Mishra) May 2016
- Rationality, uncertainty and cognition in financial markets An experimental approach using double auction asset market simulation (Adviser: Dr. Anoop Kumar) May 2017

Google Developer Group, Goa

- Leveraging the power of Virtualization, Docker and the Cloud Apr 2017

Skill Set

Languages

C, C++, Python, Java, C#, JavaScript, BASH, SQL, MongoDB, HTML, CSS, Verilog HDL, MIPS32 & x86 Assembly

Platforms/Libraries

Amazon Web Services, Google Cloud Platform, Firebase, Android Dev, Docker, LaTeX, NumPy, SciPy, Scikit-Learn, Matplotlib, NLTK, Gensim, Keras, NetworkX, iGraph, Graph-Tool, Flask, Pandas, Scikit-Image, LEX, YACC, Git VCS

Achievements

Institute Merit Scholarship — BITS Pilani Aug 2014 – Dec 2017
Awarded six times for being ranked within the top 1% of the university's students by GPA

Research Travel Grant — IPCD, BITS Pilani Aug 2017

India Connect Research Internship — NTU, Singapore
Only student from my university to be selected for both batches in the same year

Won HackAttack 2017 — Intuit Inc. Jun 2017
Built Foresight, app that uses object detection, realtime database, and Google Places API to help the differently-abled navigate better

Member of Student Faculty Council — Economic Course Review Aug 2015 – Dec 2015

Duke of Edinburgh International Award — Expedition, Bronze Category Jul 2013