Sheikh Shams Azam

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EDUCATION

National Institute of Technology Karnataka (NITK) — Surathkal, India
B.Tech in Electrical and Electronics; GPA: 8.28/10.0 (Class Avg. GPA: 7.64/10) — *July. 2011 – May. 2015*

Kendriya Vidyalaya ASC Centre — Bangalore, India
All India Senior School Certificate Examination (AISSCE); 92.4% — *April. 2010 – March. 2011*

Kendriya Vidyalaya ASC Centre — Bangalore, India
All India Secondary School Examination (AISSE); 96.4% — *April. 2008 – March. 2009*

PUBLICATIONS

An LSTM-Dense Merged Hybrid Network for ICD-10 Coding of Clinical Free Text
Submitted, NAACL-2018; Accepted, ICSWNLP-2018 (20% Acceptance Rate)

- **Abstract**: A hybrid neural network, using wide architecture of Dense and LSTM layers for accurate classification of diagnosis text among massively categorical ICD-10 codes (approx. 93k classes) using Word2Vec.

Q-Map: Clinical Concept Mining With Phrase Sense Disambiguation
Submitted, IEEE-BHI-2018; Accepted, BAICONF-IIMB-2018

- **Abstract**: A medical concept mining system that runs UMLS Metathesaurus concept search on clinical free text inputs using Aho-Corasick finite state machine and context based negation detection using language models.

RESEARCH EXPERIENCE

Practo — Bangalore, India
Data Scientist, Senior Software Engineer, Software Engineer — *June 2015 - Present*

- **Q-Map (Querent Map), An Intelligent Clinical Concept Mining System**: Refer publications section.
- **An LSTM based system for ICD-10 Coding of Clinical Free Text**: Refer publications section.
- **Practo Search**: Scalable system for faster search and intelligent suggestions using data driven adaptive ranking algorithm for personalized search results. Extending system support to allow multi-language and accent-agnostic search using language modelling and knowledge source graphs.
- **Text Preprocessing and Adaptive Stopwords Filtering**: NLP based text preprocessing for noisy channels like HTML, RTF etc. and stopword removal using Kullback Leibler Divergence and Inverse Document Frequency.
- **Practo Discovery**: Web server level Url Discovery and Redirection System for preventing web traffic overload on Application Servers and protection against DDoS attacks.

Simple Wealth — Bangalore, India
Machine Learning Intern — *December 2015*

- **Smart Offers Recommendation**: Fetching media, by implementing scraping tools for websites and their classification for personalized offer recommendations based on popularity, user interests and geolocation by leveraging the concepts of logistic regression, support vector machines and decision trees.

DRDO — Bangalore, India
Intern — *May 2013 - June 2013*

- **Portable Terrestrial RADAR**: Implementation of a through-the-barrier imaging RADAR on FPGA, conceptually based on micro-doppler effect of human heartbeats.

UNDERGRADUATE PROJECTS

Application of Machine Learning in Image Segmentation — Advisor: Dr. Ashvini Chaturvedi
Major Project — *July 2014 - May 2015*

- **Abstract**: Implementing algorithms such as k-mean clustering and morphological edge detection for isolation of object boundaries images and enhancing the techniques to perform better on noisy images by employing classical image processing techniques supported by statistical estimations.

Touch Screen Remote Control for Motor Speed Control — Advisor: Dr. K Manjunatha Sharma
Mini Project — *January 2014 - May 2014*

- - **Abstract**: Implementation of Touchscreen remote control using radio frequency communication for developing multi-level speed controller of AC motor and comparison with traditional infrared frequency based remote controls which has only line-of-sight operating capabilities.

- **Node Deployment Techniques for Object Tracking**   Advisor: Dr. Ashvini Chaturvedi
  Mini Project   *January 2014 - May 2014*
  - - **Abstract**: Comparison of effectiveness of random node deployment techniques based on Poisson and Normal Distribution for detecting intrusion in a restricted area.

- **Application of Object Tracking Algorithm in a Video**   Advisor: Dr. Ashvini Chaturvedi
  Mini Project   *July 2013 - December 2013*
  - - **Abstract**: Tracking trajectory of an object in a video using image processing techniques such as frequency domain analysis and 2D-DFT.

- **Speech Recognition System**   Advisor: Dr. K Manjunatha Sharma
  Mini Project   *July 2013 - December 2013*
  - - **Abstract**: Basic speech recognition system using total energy algorithm and zero-crossing algorithm to control speed operation of AC motor.

COMPETITIONS AND PROJECTS

- **Machine Learning Medium**: Author of the Machine Learning Medium (https://machinelearningmedium.com), a website for explaining academic papers, and the basics of mathematics and machine learning, built and maintained on github pages using Jekyll and hosted on CloudFlare.
- **Kaggle: Data Science Bowl 2017**: Among top 13% in Kaggle Data Science Bowl, 2017. Developed a machine learning classifier based on ResNet using 3D convolution for classification of malignancy of lung nodules from 3D CT Scans
- **Kaggle: Quora Questions Pairs**: Among top 16% in Kaggle Quora Question Pairs Challenge. Developed a LSTM, XGBoost transfer learning model for pairing of similar questions on Quora, a QnA website.
- **HackerEarth, IndiaHacks 2017**: Ranked 18 among several thousand participants at the IndiaHacks Challenge, 2017 organized by HackerEarth for solving real world classification problems of HERE maps and Hotstar.

AWARDS AND ACHIEVEMENTS

- **Young Leader, ISB**: One of two students selected for ISB Young Leaders Program (ISB-YLP) in Senior Year during B.Tech .
- **Highest Campus Placement, Electrical Engineering, NITK Class of 2015.**: In a class of 110, secured the highest campus placement among students of my major subject.
- **Finisar Malaysia Funded Internship**: One of three students selected for Finisar Malaysia Fully Funded Internship during Junior year.
- **Academic Scholarships**: Received various Scholarships for Academic Excellence for High School and College Studies which includes Indian Air Force-BA Scholarship and KVS Scholarship for AISSE and AISSCE Certificate CBSE Examinations.
- **All India AISSE Rank**: Secured 12th position in AISSE 2008-2009 conducted by CBSE.
- **Junior Math Olympiad**: Ranked 41st (All India Rank) and 18th (Regional Rank) in the merit among first 500 students in Junior Mathematics Olympiad.
- **Science Captain**: Selected as the and School Science Captain, Student Council of Kendriya Vidyalaya ASC Centre (S), Bangalore and also the member of the Student Discipline Council for two Consecutive years.

EXTRA-CURRICULAR

- **Basketball Player**: Former Member of University Men's Basketball Team and MVP at various Tournaments. Currently, member of NGV A-Division Sports Club at Bangalore. Active follower of NBA.
- **Student Coach, University Women's Basketball Team**: Coached the Women's Basketball Team in the senior year, helping them with several podium finishes.
- **Member, Dance Drama and Fashion Club**: Former member of Dance, Drama and Fashion Club
- **Organising Committee Member, Incident, 2015**: Organizing committee member of Incident, 2015, one of biggest college cultural fests in India.

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*References available on request.