KARTIK VASUDEV SHENOY

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EDUCATION

University of Southern California — **January 2021 – Exp. Dec 2022**
Master of Science in Computer Science (Artificial Intelligence) with Honors — GPA: **4 / 4**
Courses: Advanced Natural Language Processing, Advanced Computer Vision, Algorithms

University of Mumbai, India — **August 2014 – June 2018**
Bachelor of Technology in Computer Engineering; **Department Rank: 1** — GPA: **9.56 / 10**

EXPERIENCE

Information Sciences Institute, USC — **February 2021 – Present**
Research Assistant, Centre of Knowledge Graphs — Los Angeles, CA

- Constructed a repository of scripts for identifying low quality statements in Wikidata knowledge graph amongst **1.1 billion** statements on the basis of deleted, deprecated statements and constraint violations using kgtk library.
- Enhanced the **graph embeddings** of nodes using retrofitting based on **BERT** embeddings and structural, textual properties extracted from **Wikidata, Probase and DBPedia** datasets increasing **Spearman correlation from 0.66 to 0.73** on WordSim353 benchmark.

Barclays Global Service Centre — **July 2018 – December 2020**
Software Developer (Machine Learning), Barclaycard UK — Pune, India

- Devised a prototype fraud detection system to identify mule accounts by building a pipeline of **Kafka** queues, **Cassandra DB** and **PySpark** servers having an ensemble of Machine Learning models achieving a processing speed of **20ms per transaction**.
- Designed a real-time tweets **sentiment analysis** and classification engine for Barclays accounts to enable quick customer service response achieving an accuracy of around **90 %** in pilot runs.
- Created a classifier application utilizing topics identified with the help of unsupervised algorithm **Latent Dirichlet Allocation** to extract insights by generating ontologies from iOS and Android application reviews and customer complaints.
- Spearheaded the design of a system that helps in connecting the colleagues with available bandwidth and skillsets with the colleagues needing assistance in their work, using **AngularJS, Java, MySQL**, saving more than **900 man-hours** annually.
- Implemented **dashboards** for automated generation of real-time delivery metrics of more than 30 teams from Agile Central and Jira data sources which have been saving around **150 man-hours** annually. Bagged the **Barclays Award of Stewardship** for this initiative**.**

PROJECTS

- **Alexa Social Bot** - Contributed to the development of Alexa social bot including conversational elements such as **Sentence BERT**, offensive speech classification, **SNIPS NLU** intent classifier, **FSMs**, **DialoGPT** and other neural text generation modules.
- **VeriSign** [Demo Link] [Github Link] - Deployed a web application to verify signatures and to detect forgery which achieved an accuracy of 96 % by training a **Convolutional Siamese Network** using the concept of One-Shot Learning.
- **Pneumonia Detection from Chest X-Ray Scans** [Github Link] - Trained a **CNN** on Chest X-Ray Scans with histogram equalization achieving 94.56 % accuracy and a recall score of 0.97.
- **ML Virtual Labs** [Demo Link] - Led a team of three to enable a **web learning platform** for ML concepts such as neural networks, learning rules and optical character recognition. This lab has won the Global Online Laboratory Consortium International Lab Award.

PUBLICATIONS

- "Viola: A Topic Agnostic Generate-and-Rank Dialogue System", 4th Proceedings of Alexa Prize (Alexa Prize 2020). [paper link]
- "A Study of the Quality of Wikidata". Preprint submitted to Elsevier, July 2021. [paper link] [Github link]
- "Real-time Indian Sign Language (ISL) Translation", 9th International Conference on Computing, Communication and Networking Technologies (ICCCNT). Published in IEEE Xplore, October 2018. [paper link] [Github link]
- "An Effective Pixel-Wise Approach for Skin Colour Segmentation - Using Pixel Neighbourhood Technique", International Journal on Recent and Innovation Trends in Computing and Communication (IJRITCC), 2018. [paper link]

SKILLS

Programming Languages: Python, C++, Java, JS

Machine Learning: TensorFlow, PyTorch, Pandas, Keras, Scikit-learn, NLTK, Spacy, Knowledge Graphs

Frameworks: OpenCV, Numpy, PySpark, Kafka

Web: LAMP stack, Angular JS, NodeJS, Flask

Database: MySQL, MongoDB, CassandraDB

Tools: AWS (EC2, RDS, S3, EKS, Comprehend), Github, Firebase, Matlab, Google Colab, Heroku, Docker

ACHIEVEMENTS & INVOLVEMENTS

- **Semifinalist** of Alexa Socialbot Grand Challenge 4 (2020-2021) as part of Team Viola.
- **Sir Dorabji Tata Trust scholarship** for securing 1st Rank in a class of 120 students during undergraduate studies.
- '**Vice-President - Membership**' of Barclays Pune 2 Toastmasters Club (January 2019 - June 2019).
- Member of Junior Chambers International Club (2019) – contributing to **social service** causes such as afforestation, blood donation.