

# KARTIK VASUDEV SHENOY

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## EDUCATION

### University of Southern California

Master of Science in Computer Science with Honors

Courses: Advanced Natural Language Processing, Algorithms

January 2021 – Exp. Dec 2022

GPA: 4 / 4

### University of Mumbai, India

Bachelor of Technology in Computer Engineering; **Department Rank: 1**

August 2014 – June 2018

GPA: 9.56 / 10

## EXPERIENCE

### Information Sciences Institute, USC

Student Worker, Centre of Knowledge Graphs

February 2021 – Present

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

Software Developer, Barclaycard UK

July 2018 – December 2020

Pune, India

- 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.
- Translated VISA, Mastercard scheme mandates into system code which processes millions of transactions every day.
- 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.

## 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.
- **Mera Caar – Guide to Car Components** [[Link](#)] [[Github Link](#)] - Developed an interactive **Angular** web-app to navigate around a car's skeleton and get details about the selected components such as engine, radiator, suspension with sound effects and visuals.
- **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.
- **Ayurvihar Health Tracker** – Led a team of seven students in planning and designing a **web and Android tablet-based** tracker and reminder system for child vaccinations, ailments specific to women and elderly from an impoverished area covered by the Community Center of K J Somaiya Ayurvihar Hospital.
- **ML Virtual Labs** [[Demo Link](#)] - Led a team of three to enable a **PHP-based web learning platform** for ML concepts such as neural networks, and optical character recognition. This lab has won the [Global Online Laboratory Consortium International Lab Award](#).

## SKILLS

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

**Web:** Angular JS, NodeJS, Flask, PHP, Bootstrap, Hibernate, Spring

**Frameworks:** Kafka, Hadoop, OpenCV, Numpy, PySpark

**Database:** MySQL, MongoDB, CassandraDB

**Machine Learning:** TensorFlow, Pandas, Keras, NLTK

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

## 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](#)]

## ACHIEVEMENTS & INVOLVEMENTS

- **Semifinalist** of Alexa Socialbot Grand Challenge 4 (2020-2021) as part of Team Viola.
- **Sir Dorabji Tata Trust scholarship** for securing 1<sup>st</sup> 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.