# Vivek Kumar Maskara

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Website • Github • LinkedIn


A polyglot Software Engineer, currently building privacy preserving machine learning models for ~1.8 million Bank of West customers. With strong Computer Science fundamentals and experience with Statistical Machine Learning, Data Mining techniques and deep learning models, I always tend to bring a unique perspective when solving business problems.

## Education

**Master of Science**, **Computer Science** — Expected in 12/21
Arizona State University - Tempe, Arizona — GPA:4.0
Relevant Coursework: Statistical Machine Learning, Data Mining, Cloud Computing, Data Visualization

**Bachelor of Technology**, **Software Engineering** — 05/16
Delhi Technological University - New Delhi, India — GPA: 3.34
Relevant Coursework: Computer Graphics, Artificial Intelligence, Object-Oriented Programming, and Digital Image Processing

## Work History

**Graduate Research Assistant** — 02/20 to Present
The Luminosity Lab, ASU – Arizona, USA

- Building a privacy preserving deep learning model for customer segmentation, churn prediction and for improving cross-selling opportunities for Bank of West
  - Experimented with tabular synthetic data generation to set up a data sharing pipeline using sequence to sequence models & GANs achieving ~90% statistical representation using GANs.
  - Explored usage of PySyft to leverage federated learning and differential privacy using TensorFlow.
- Researching on attention based object detection model for identification of Neuroblastoma using pathological images for PCH hospital.
  - Experimented with pre-training on different pathological datasets to analyze transferability across domains.
  - Exploring data augmentation, self iterative learning and attention based on classification masks to improve the network.
  - Implemented Grad Cam for ResNet-18 in PyTorch to understand the behaviour of the model
- Streamlined the process of producing and delivering PPE kits by building ASU's PPE response app using Flask, NextJS & PostgreSQL

**Senior Software Engineer** — 06/16 to 11/19
Zeta, Directi – Bangalore, India

- End-to-end ownership of Zeta's food ordering solution for POS devices and Raspberry Pi based self-serve Kiosks
  - Attributed to 1 million+ monthly transactions.
  - Developed Spring boot based microservices for handling contactless payments(NFC & RFID) and QR code based Kiosk payments.
  - Brought downtime to absolute 0 by building a completely offline payment experience for resilience against server outages.
  - Ensured availability of detailed analytics using Firebase, BigQuery and DataStudio for traceability of offline scenarios.
- Contributed in setting up a streaming pipeline for Zeta's rule engine allowing it to be continuously updated with new data using Kafka, Zookeeper, KSQL and PostgreSQL.
- Reduced the p99 latencies for NFC tag authorization in payment flow to sub-10ms using memcache and optimizing PostgreSQL queries.
- Setup multiple service health monitoring dashboards and automated-alerts for critical microservices serving ~1 million requests/day using Kibana, Graphana, ElasticSearch and Elastalert.
- Added support for scheduling customizable Redshift, PostgreSQL and Jasper reports in Zeta's Spring Boot based reporting service.
- Developed a Google assistant bot for voice based food ordering using DialogFlow.

## Projects

**Image Recognition As a Service, Cloud Computing Project, ASU** — 01/20 to 05/20

- Built a real-time object detector service using YOLO, AWS cloud and Raspberry Pi beating the baseline performance.
- Effectively utilized EC2, S3 and SQS for parallel processing of videos while controlling demand based auto-scaling of instances.

**Analysis of CGM time series data, Data Mining Project, ASU** — 01/20 to 05/20

- Worked on CGM time-series data analysis to extract features via various methods like statistical analysis, fourier & power transforms.
- Implemented multiple classification & supervised-clustering algorithms to achieve 70% accuracy improving over the baseline of 60%.

**Grain Measurement System, Inweon** — 08/15 to 05/17

- Achieved >99% accuracy in analyzing physical parameters of rice particles using linear regression and semantic segmentation algorithms.
- Currently deployed in 100+ rice mills across India with 1000+ readings taken on a daily basis.

**Flight Departure Delay Prediction, Major Thesis** — 01/16 to 05/16

- Experimented with Bayesian networks, Decision Trees & Logistic Regression for predicting the on-time arrival of flights
- Achieved an accuracy of 90% with the J48 Decision Tree using a subset of BoT Flight Dataset with ~1 million records.

## Volunteering

**Wikimedia Foundation** — 03/17 to Present

- Reduced vandalism in the pictures uploaded through the mobile app from 5.79% to 3.43% by restricting unwanted pictures like selfies, dark or blurred images, and duplicates using OpenCV and MobileNet.
- Received multiple project grants and travel scholarships to participate in annual conferences and hackathons.
- Mentored students during summers for Google Summer of Code, Outreachy and Google School since 2018.

## Certifications

- TensorFlow in Practice Specialization by DeepLearningAI — 02/20
- Convolutional Neural Networks by DeepLearningAI — 02/20
- Neural Networks and Deep Learning by DeepLearningAI — 07/20

## Notable Highlights

- Published 100+ of blog posts on Windows App Tutorials, Tutsplus, ProAndroidDev and Towards Data Science.
- Zeta: Stellar performer award in first year and outstanding performer award for next two consecutive years.