Abhishek Kumar

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EDUCATION

University at Buffalo **Aug. 2021 -**
Masters of Science in Computer Science (GPA - 3.668) *Buffalo, NY*
Relevant coursework: Deep learning, Machine learning, Computer vision, Sports Video Analytics, Neurosymbolic AI, Design of Algorithms, Distributed Systems

SRM University **July. 2013 - May 2017**
Bacherlors in Technology in Mechanical Engineering (GPA - 3.94) *Chennai, TN*
Relevant coursework: Advanced Calculus, Numerical methods, Robotics, Matlab, Intro to Programming

SKILLS

(**proficient**) Python, C++, Pytorch, Tensorflow, Keras, SQL, Git, Docker (**familiar**) Flask, SQLite, OpenCV, Kafka, Unix

EMPLOYMENT

Infosys **February 2018 – August 2020**
Systems/Software Engineer *Bhubaneswar, Odisha*
- Developed a **plant lifecycle management application** for end to end manufacturing management.
- Created **invoice correction application** for business users in purchasing domain.
- Integrated Google Map API with CUMMINS Global Service Locator application.
- Automated cron jobs to **improve process control** and **increased batch transfer efficiency by 8%**.
- Migrated CUMMINS internal applications from Oracle Apex12 to Apex17. **Reduced login latency by 20%**.
- Tested and **fixed production bugs** and **server side validations** for SOX and Non SOX applications.
- **Leveraged skills**: Java, Tomcat, Weblogic, Hibernate, PLSQL, GitLab, Unix, Toad, Appworx, Oracle Apex

University at Buffalo **May 2022 –**
Graduate Teaching Assistant *Buffalo, New York*
- Guided students to develop deep learning projects for **video analysis** in the sports domain
- Assisting professor David Doermann and Nalini Ratha in conducting classes and grading student presentations.

SELECTED PROJECTS

Soccer Player Re Identification :: *Python, Pytorch, Torchreid*
- Developed a soccer player **Re-identification** model for SoccerNetV2 challenge.
- Proposed model consisted of a **two stream CNN** network to learn **part features and appearance features** separately using pretrained networks and optimized using triplet an id loss. **Ranked 8th** in the competition

Text to image generation using GAN :: *Python, Tensorflow, FID, Word2Vec, ResNet*
- Implemented a text to image generation model using **Deep Residual GANs on Flickr8k** dataset.
- Trained the dataset on a modified generator with Resnet blocks to generate text-guided fake images.

Panorama stitching :: *Python, OpenCV*
- Created a program to stitch stereo images pairs to build a **panorama** with **SIFT features.**
- Implemented **K-Nearest Neighbour, ratio testing and RANSAC** to stitch images with seamless boundaries.

Taco DB :: *C++, Git, Vim, Linux*
- Built a **single threaded mini database system** for efficient data retrieval and storage.
- Designed the **file manager and page handler** using **clock eviction policy**.

Distributed Messaging System :: *Python, Flask, Kafka, Docker, MongoDB, Socket (IP/TCP), HTML/CSS*
- Developed a **full stack publisher subscriber messaging system** with event based routing.
- Designed publish, subscribe, unsubscribe, advertise, de-advertise and notify functionalities.
- Dockerized the multi node application into containers using docker-compose.

RESEARCH

- Ear Hair cell detection and counting using Deep Learning under Prof. Junsong Yuan and Prof. Jinjun Xiong.
- Lidar point cloud segmentation using local feature aggregation for autonomous vehicles (Independent).