Bhushan Bhagwan Gawde

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EDUCATION

Technical University of Munich — September 2023
Master of Science in Informatics — Munich, Germany

Veermata Jijabai Technological Institute (VJTI) — May 2018
Bachelor of Technology in Computer Engineering. **CGPA: 9.44/10 (4th rank)** — Mumbai, India

PROFESSIONAL EXPERIENCE

Samsung R&D India, Bangalore – *Senior Software Engineer– AI Computational Imaging* — June 2018 – April 2021

- Experienced in design and development of human portrait-based artistic effects under the **Selfie Camera** '**Portrait**' mode in Samsung's **flagship** Galaxy smartphone models like Galaxy **S20**, Galaxy **Note 20**, Galaxy **S21**, etc.
- Implemented deep learning-based human **instance** and **semantic** segmentation networks in PyTorch.
- Collaborated on the development of Android native libraries in C++. Restructured the code with **ARM Neon** intrinsics to achieve real-time KPI.
- Developed 'Temporal Smoothing' and 'Depth-based Bokeh Rendering' native modules in C++, that were integrated into the Bokeh solution pipeline of Portrait mode. Focused on core functionality implementation and optimizations.
- Led a group of 3 to handle performance issues encountered during end-to-end solution deployment.
- Collaborated on a **patent** idea titled 'System and method for enhanced video segmentation using dynamic ROI estimation'. Provisional patent application number: 202141001449.

Samsung Electronics, South Korea – *Software Engineer* — September 2019 – November 2019

- Travelled to **Samsung HQ** at **South Korea** for 2.5 months for carrying out the commercialization activities related to Portrait mode on Samsung's flagship and innovative smartphone series. (S series, A series, M series, etc.).
- Achieved significant knowledge of end-to-end system design of Samsung's Camera application and framework.
- Received '**Samsung Citizen Award**' for efficiently co-working with HQ counterparts.

Samsung R&D India, Bangalore – *Student Trainee (Intern) – Vision Research* — May 2017 – July 2017

- Researched on various real-time object detection networks.
- Trained '**YOLOv2'** on **KITTI** dataset for real-time pedestrian detection.
- Identified bottlenecks to improve mAP.

PUBLICATIONS

- B. Gawde, "A fast, automatic risk detector for COVID-19", *IEEE Pune International Conference, IEEE, March 2021*. [pdf].
- B. Gawde*, B. Makwana, et al., "Opsum: Topic-based opinion summarization and sentiment analysis", *International Journal of Engineering Research and Applications*, *Vol. 8, Issue 9, September 2018.* [pdf].

TECHNICAL SKILLS

- **Programming languages**: C, C++, Python. Also, familiar with Java, HTML, CSS, JavaScript, PHP, and OpenCL.
- **Machine Learning and Data Analytics**: PyTorch, Scikit-Learn, NumPy, Pandas, Matplotlib.
- **Application Software**: Microsoft Visual Studio, Android Studio, Eclipse.
- **Database:** Microsoft SQL Server, MySQL.
- **Version Control tools:** Git, Perforce.

SELECTED PROJECTS

A fast, automatic risk detector for COVID-19 | Python, PyTorch

- Developed a deep learning-based framework that incorporates detection of faces with/without face mask in images, age prediction of people in case of absence of mask, and calculation of distance between people in an image.
- Compared Faster RCNN, YOLOv2 and YOLOv3 networks for object detection. Used 'Real-World Masked Face dataset'.

Automatic Image Captioner | Python, Keras

- Developed a deep learning model for automatic generation of captions describing images.
- Trained **ResNet-101** model for feature extraction and an RNN made up of **LSTM** units for processing the caption sequence.
- Decoder consisted of an Add layer and a final Dense layer for making final predictions. Used 'Flickr8K' dataset.

Topic based opinion summarization and sentiment analysis | Python, TensorFlow

- Trained an **LSTM** network for sentiment analysis of phone reviews from amazon.com.
- Created a summary of product features using extractive summarization approach.

Emotion-aware music player | Python, PyTorch, OpenCV

- Trained Haar Cascade detector for face detection and a simple, 6-layered CNN for emotion recognition. Based on the classified emotion of the user, a relevant song is automatically played from the playlist.

EXTRA-CURRICULAR

- Volunteered for the practical sessions in **Computer Vision workshop** conducted by Samsung at **IIT, Bombay**.