

# Anushree Bannadabhavi

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## EDUCATION

### UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER

Master of Engineering in Electrical & Computer Engineering – 92.4%

September 2021 – May 2023

Key Courses: Advanced Machine Learning (ML) techniques, Deep learning with structures, Visual AI, Computer Vision, Data Structures and Algorithms, Technology Entrepreneurship

### SRI JAYACHAMARAJENDRA COLLEGE OF ENGINEERING (SJCE), MYSORE, INDIA

September 2011 – May 2015

Bachelor of Engineering in Electronics and Communication Engineering – 9.46/10

## EXPERIENCE

### DEPENDABLE SYSTEMS LAB, UBC VANCOUVER | Graduate Academic Assistant | LLTFI

May 2022 – December 2022

- Added support for fault injection in Natural Language Processing (NLP) models like BERT, GPT and T5 in the LLTFI (Low Level Tensor Fault Injector) tool [\[GitHub\]](#).
- Created post-processing scripts to study the effect of fault injection experiments on the generated text outputs.
- Added detailed documentation, created an auto installer tool, added docker support to enable ease of LLTFI installation and setup, added regression tests for the ML models.
- Technologies: C++, Linux, docker, shell script, Python.

### TOSHIBA, BANGALORE | Software Engineer | Image Processing Accelerators

July 2018 – March 2021

- Worked on C to CUDA porting of Toshiba's IPA (Image Processing Accelerators) library to create a demonstrable product running on a GPU that replicates the image processing functionalities of Toshiba's Visconti hardware chip.
- Optimized stereo matching module and the pyramid module reducing the execution time from ~105 ms to ~5ms.
- Mentored two interns, brought them up to speed and ensured successful task completion.
- Technologies: C, C++, CUDA C/C++, Linux, Windows, OpenCV.

### ROBERT BOSCH, BANGALORE | Associate Software Engineer | Car Infotainment Tuner

July 2015 – June 2018

- Built features like mixed preset list of radio stations, online and offline personalization to provide user customization in the car infotainment system.
- Designed, implemented, and tested the configuration library increasing code readability and modularity and reduced bugs in the component by ~30%.
- Technologies: C++, Linux.

## PROJECTS

### COMMUNITY AWARE BRAIN NETWORK TRANSFORMER, UBC

September 2022 – April 2023

- Developed 'Com-BrainTF', a local-global hierarchical transformer architecture for fMRI brain connectome analysis. The model can be utilized for various downstream tasks, including gender and disease prediction.
- Achieved improved interpretability and an accuracy of 72.5% on Autism prediction task on the ABIDE dataset, outperforming the state-of-the-art (SOTA) architecture 'Brain Network Transformer'.
- Submitted the work to 'The Medical Image Computing and Computer Assisted Intervention Society' (MICCAI) 2023 conference (Impact factor: 13.828). Awaiting response.
- Technologies: Python, PyTorch, Transformers, WandB, Hydra

### DATA-EFFICIENT TENSORF - NERF, UBC

January 2023 – April 2023

- Developed 'DE-TensorRF', a data-efficient implementation of TensorRF. While TensorRF uses 100 images, DE-TensorRF produces high-quality 3D reconstruction with as few as 3 images in under 30 minutes of training time [\[GitHub\]](#).
- Proposed three techniques to achieve data-efficiency: symmetry, semantic conditioning, and semantic loss [\[Report\]](#).
- Technologies: Python, PyTorch, Neural Radiance Fields

### SPATIAL INPAINTING FOR HUMAN MOTION PREDICTION, UBC

January 2022 – April 2022

- Modified existing work 'DMGNN' that predicts future human motion trajectories for spatial inpainting task [\[GitHub\]](#).
- Replaced DMGNN's deterministic network with a variational generation network to predict future poses from occluded past poses and implemented a discriminator network to explicitly discriminate unrealistic generated motion.
- Achieved performance on-par with the "vanilla" DMGNN.
- Technologies: Python, PyTorch, VAE, GAN.

## TECHNICAL SKILLS

**Languages:** C++, C, CUDA C/C++, Java, Python, Javascript, HTML, CSS.

**Modules/Frameworks:** PyTorch, TensorFlow, PyTorch Geometric, scikit-learn, pandas, NumPy.

**Other:** Visual Studio, Eclipse, Git, JIRA, SVN, Virtual Machine, Docker.