Anushree Bannadabhavi

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EDUCATION

UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER
Master of Engineering in 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

TRUSTED AND EFFICIENT AI LAB, UBC | **Deep Learning Researcher** | Transformers **September 2022 – April 2023**
- Developed a local-global hierarchical transformer architecture 'Com-BrainTF' for fMRI brain connectome analysis that can be utilized for various downstream tasks, including, but not limited to, gender and disease prediction.
- Outperformed state-of-the-art (SOTA) architectures for Autism prediction task on the ABIDE dataset and achieved an accuracy of 72.5% and improved interpretability [GitHub].
- Paper accepted in 'The Medical Image Computing and Computer Assisted Intervention Society' (**MICCAI**) 2023 conference (Impact factor: 13.8) and **OHBM** 2023 conference.
- Technologies: Python, PyTorch, Transformers, WandB, Hydra

DEPENDABLE SYSTEMS LAB, UBC | **Deep Learning Researcher** | LLTFI **May 2022 – December 2022**
- Enabled fault injection in Natural Language Processing (NLP) models like BERT, GPT and T5 (ONNX models) 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, ONNX.

TOSHIBA, BANGALORE | **Software Engineer** | Computer Vision **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

DATA-EFFICIENT TENSORF - NERF, UBC **January 2023 – April 2023**
- Developed 'DE-TensoRF', a data-efficient implementation of TensoRF. While TensoRF uses 100 images, DE-TensoRF 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, Deep Learning, Multi-Layer perceptrons

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.