

Amanpreet S. Walia

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SUMMARY	<ul style="list-style-type: none"> Computer Vision Research Engineer specializing in on-device image enhancement, model optimization (SNPE/DLC, AIMET), and local LLM deployment (Ollama, llama.cpp). Strong research background with CVPR publications and a US patent in computational photography.
EDUCATION	<p>M.Sc. (Thesis), Computer Science 2018 – 2021 McGill University Thesis: Uncertainty in depth estimation using RGB-gated images Supervisor: Prof. Michael Langer GPA: 3.90/4.00</p> <p>B.Eng., Computer Engineering 2013 – 2018 York University GPA: 7.9/9.0</p>
TECHNICAL SKILLS	<p>Languages: Python, C++, C, Java, MATLAB, SQL Frameworks/Tools: PyTorch, Qualcomm SNPE, AIMET, OpenCV, TensorFlow, Keras, llama.cpp, Ollama, L^AT_EX Hardware: Qualcomm Snapdragon, Nvidia Jetson TX1, Huawei Atlas 200, Raspberry Pi</p>
EXPERIENCE	<p>Computer Vision Research Engineer, Samsung Research America Dec 2022 – Present Theme: Efficient Models for Image Enhancement</p> <ul style="list-style-type: none"> Deployed image enhancement models to Qualcomm devices by converting pipelines to SNPE/DLC and resolving operator/runtime constraints for production inference. Built and optimized super-resolution and HDR components with a focus on on-device quality stability (artifact control, consistency across scenes) and runtime efficiency. Improved latency and memory footprint through deployment-oriented architecture changes and quantization workflows using AIMET. <p>Computer Vision Researcher, Algolux Aug 2021 – Dec 2022 Theme: Depth Estimation from RGB & Gated Images</p> <ul style="list-style-type: none"> Developed a self-supervised depth estimation approach for gated imaging that improved generalization and closed the gap with prior supervised baselines under real capture conditions. <p>Machine Learning Engineer (Full-time Contract), Huawei Canada Mar 2021 – Aug 2021 Theme: Model Compression for NLP on NPU</p> <ul style="list-style-type: none"> Ported low-rank decomposed GPT-2/CPM-style models to Huawei NPU execution constraints; validated accuracy/performance trade-offs and integration readiness.
PROJECTS	<p>Local LLM Exploration 2024 – Present</p> <ul style="list-style-type: none"> Evaluated quantized LLMs (Llama-3, Mistral) on edge hardware using llama.cpp and Ollama; focused on GGUF format optimization and on-device performance profiling.
PUBLICATIONS	<ul style="list-style-type: none"> Amirhossein Kazerouni, Maitreya Suin, Tristan Aumentado-Armstrong, Sina Honari, Amanpreet S. Walia, Iqbal Mohomed, Kosta Derpanis, Babak Taati. <i>Face2Scene: Using Facial Degradation as an Oracle for Diffusion-Based Scene Restoration.</i> CVPR 2026 (Accepted). Stefanie Walz et al. <i>Gated Stereo: Joint Depth Estimation from Gated and Wide-Baseline Active Stereo Cues.</i> CVPR 2023. Amanpreet S. Walia, S. Walz et al. <i>Gated2Gated: Self-Supervised Depth Estimation from Gated Images.</i> CVPR 2022.
PATENTS	<p>Dual-camera Joint Denoising-Deblurring using Burst of Short and Long Exposure Images. 2024 Inventors: Shayan Shekarforoush, Amanpreet Singh Walia, Aleksai Levinshtein, Konstantinos G. Derpanis, Marcus A. Brubaker Patent Application: US20240311968A1</p>