

# Amanpreet S. Walia

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**SUMMARY** • 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** **M.Sc. (Thesis), Computer Science**, McGill University 2018 – 2021  
Thesis: [Uncertainty in depth estimation using RGB-gated images](#) GPA: **3.90**/4.00  
**B.Eng., Computer Engineering**, York University 2013 – 2018  
GPA: **7.9**/9.0

**TECHNICAL SKILLS** **Languages:** Python, C++, C, Java, MATLAB, SQL  
**Frameworks/Tools:** PyTorch, Qualcomm SNPE, AIMET, OpenCV, TensorFlow, Keras, llama.cpp, Ollama,  $\LaTeX$   
**Hardware:** Qualcomm Snapdragon, Nvidia Jetson TX1, Huawei Atlas 200, Raspberry Pi

**EXPERIENCE** **Computer Vision Research Engineer, Samsung Research America** Dec 2022 – Present  
**Theme:** *Efficient Models for Image Enhancement*  
• 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.  
**Computer Vision Researcher, Algolux** Aug 2021 – Dec 2022  
**Theme:** *Depth Estimation from RGB & Gated Images*  
• 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.  
**Machine Learning Engineer (Full-time Contract), Huawei Canada** Mar 2021 – Aug 2021  
**Theme:** *Model Compression for NLP on NPU*  
• Ported low-rank decomposed GPT-2/CPM-style models to Huawei NPU execution constraints; validated accuracy/performance trade-offs and integration readiness.

**PROJECTS** **Local LLM Exploration** 2024 – Present  
• 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** Amirhossein Kazerooni, Maitreya Suin, Tristan Aumentado-Armstrong, Sina Honari, **Amanpreet S. Walia**, Iqbal Mohamed, Kosta Derpanis, Babak Taati.  
*Face2Scene: Using Facial Degradation as an Oracle for Diffusion-Based Scene Restoration. CVPR 2026 (Accepted).*  
• Stefanie Walz et al. *Gated Stereo: Joint Depth Estimation from Gated and Wide-Baseline Active Stereo Cues. CVPR 2023.*  
• **Amanpreet S. Walia**, S. Walz et al. *Gated2Gated: Self-Supervised Depth Estimation from Gated Images. CVPR 2022.*

**PATENTS** **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](#)