

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

## TECHNICAL SKILLS

**Languages:** Python, C++, C, Java, MATLAB, SQL  
**Frameworks/Tools:** PyTorch, Qualcomm SNPE/DLC, AIMET, LLM Deployment (Ollama, llama.cpp, GGUF), OpenCV, TensorFlow, Keras,  $\text{\LaTeX}$   
**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.

## 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, Mario Bijelic, Andrea Ramazzina, **Amanpreet S. Walia**, Fahim Mannan, Felix Heide.  
*Gated Stereo: Joint Depth Estimation from Gated and Wide-Baseline Active Stereo Cues.* **CVPR 2023.** arXiv:2305.12955.  
<https://arxiv.org/abs/2305.12955>
- **Amanpreet S. Walia**, Stefanie Walz, Mario Bijelic, Fahim Mannan, Fernando Julca-Aguilar, Michael Langer, Felix Heide.  
*Gated2Gated: Self-Supervised Depth Estimation from Gated Images.* **CVPR 2022.** arXiv:2112.02416.  
<http://arxiv.org/abs/2112.02416>

## 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](#)