

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](#)
B.Eng., Computer Engineering, York University GPA: 3.90/4.00
GPA: 7.9/9.0 2013 – 2018

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, L^AT_EX
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 Kazerouni, Maitreya Suin, Tristan Aumentado-Armstrong, Sina Honari, **Amanpreet S. Walia**, Iqbal Mohomed, 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](#)