

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	<div><div>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</div><div>B.Eng., Computer Engineering 2013 – 2018 York University GPA: 7.9/9.0</div></div>
TECHNICAL SKILLS	<p>Languages: Python, C++, C, Java, MATLAB, SQL</p> <p>Frameworks/Tools: PyTorch, Qualcomm SNPE, AIMET, OpenCV, TensorFlow, Keras, llama.cpp, Ollama, \LaTeX</p> <p>Hardware: Qualcomm Snapdragon, Nvidia Jetson TX1, Huawei Atlas 200, Raspberry Pi</p>
EXPERIENCE	<div><div>Computer Vision Research Engineer, Samsung Research America Dec 2022 – Present Theme: <i>Efficient Models for Image Enhancement</i><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.</div><div>Computer Vision Researcher, Algolux Aug 2021 – Dec 2022 Theme: <i>Depth Estimation from RGB & Gated Images</i><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.</div><div>Machine Learning Engineer (Full-time Contract), Huawei Canada Mar 2021 – Aug 2021 Theme: <i>Model Compression for NLP on NPU</i><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.</div></div>
PUBLICATIONS	<ul style="list-style-type: none">Amirhossein Kazerouni, Maitreya Suin, Tristan Aumentado-Armstrong, Sina Honari, Amanpreet S. Walia, Iqbal Mohamed, Kosta Derpanis, Babak Taati. <i>Face2Scene: Using Facial Degradation as an Oracle for Diffusion-Based Scene Restoration</i>. CVPR 2026 (Accepted).Stefanie Walz, Mario Bijelic, Andrea Ramazzina, Amanpreet S. Walia, Fahim Mannan, Felix Heide. <i>Gated Stereo: Joint Depth Estimation from Gated and Wide-Baseline Active Stereo Cues</i>. CVPR 2023. arXiv:2305.12955. https://arxiv.org/abs/2305.12955Amanpreet S. Walia, Stefanie Walz, Mario Bijelic, Fahim Mannan, Fernando Julca-Aguilar, Michael Langer, Felix Heide. <i>Gated2Gated: Self-Supervised Depth Estimation from Gated Images</i>. CVPR 2022. arXiv:2112.02416. http://arxiv.org/abs/2112.02416
PATENTS	<p>Dual-camera Joint Denoising-Deblurring using Burst of Short and Long Exposure Images. 2024</p> <p>Inventors: Shayan Shekarforoush, Amanpreet Singh Walia, Aleksai Levinshtein, Konstantinos G. Derpanis, Marcus A. Brubaker</p> <p>Patent Application: US20240311968A1</p>