

# Amanpreet S. Walia

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