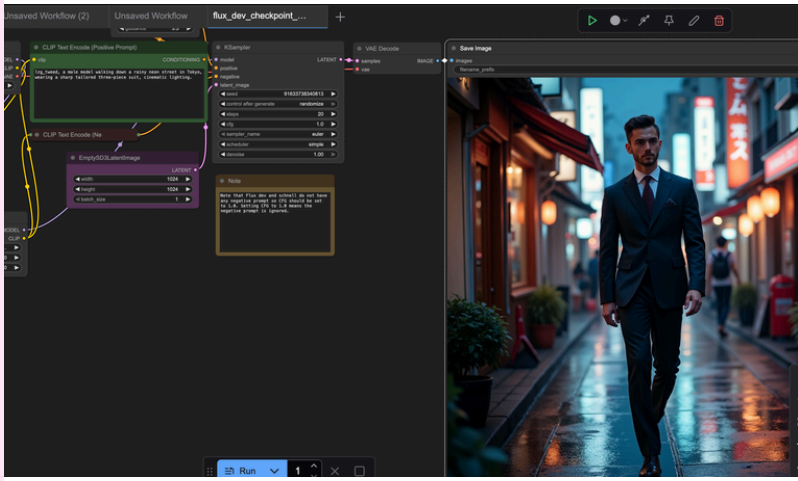
CASE STUDY: HIGH-FIDELITY MATERIAL CONDITIONING WITH FLUX LORAS



The Objective

In generative fashion pipelines, foundation models (like FLUX.1) excel at anatomical accuracy but struggle with highly specific, textured fabrics—often defaulting to generic noise. The goal of this sprint was to build a robust conditioning pipeline to enforce a complex, heavy-weight Scottish tweed texture across multiple garment silhouettes without compromising the model's structural logic.

The Technical Stack

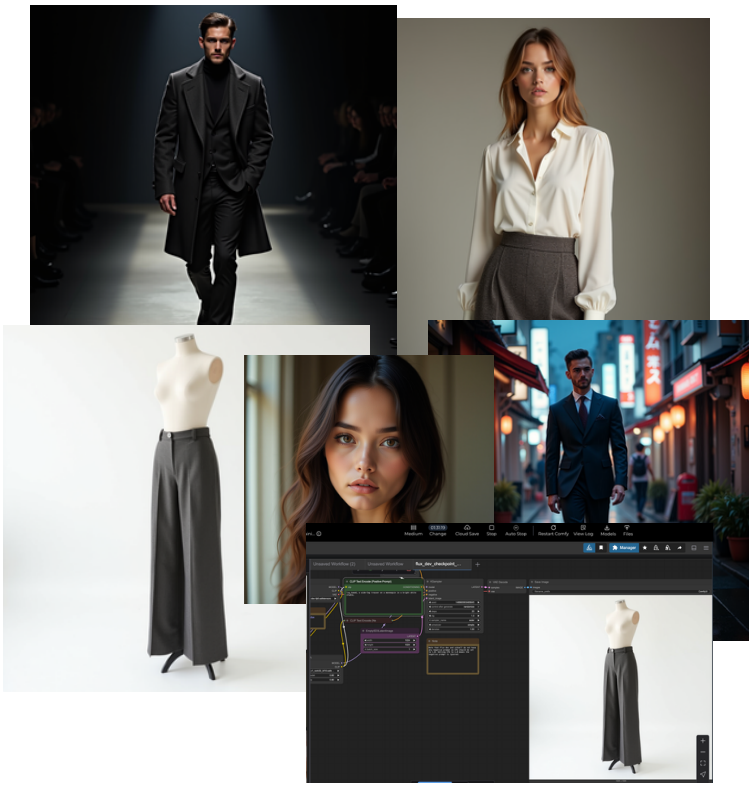
- Base Architecture: FLUX.1
- Methodology: Low-Rank Adaptation (LoRA) Fine-Tuning
- Optimizer: AdamW8bit (Learning Rate: 1e-4, Dim: 32, Alpha: 16)
- Hardware: Cloud-provisioned Nvidia A100 via RunComfy

Dataset Curation & Tagging Strategy

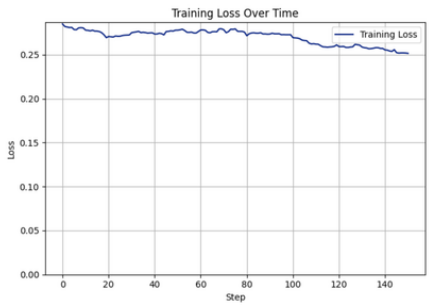
To ensure the model learned the fabric texture and not the garment shape, I curated a tight dataset of 20 high-resolution studio images featuring the tweed across various silhouettes (blazers, skirts, trousers).

To prevent silhouette-entanglement, I utilized explicit garment tagging in the text-image pairs (e.g., lzg_tweed, a woman wearing a tailored blazer). This isolated the trigger word (lzg_tweed) entirely to the material properties.

The Results



As demonstrated, the pipeline successfully locks the exact structural weave and color profile of the target tweed onto dynamic silhouettes in various lighting conditions, achieving brand-level consistency.



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