

Context

Furnipop is developing a proof of concept for an AI-driven platform capable of visually analyzing and combining thousands of interior products into coherent design proposals.

The main challenge lies in adapting generic vision-language models to a domain-specific interior design context, where both aesthetic harmony and commercial constraints (budget, availability, region) must be respected.

Objective

The goal of this internship is to build a functional prototype of an AI module that can:

- Learn visual and semantic similarities between interior products.
- Quantify style recognition and aesthetic harmony.
- Generate explainable and constraint-aware recommendations (price, region, sustainability).

Possible Research Questions

1. Which computer vision architectures (CLIP, ViT, ResNet) deliver the best results for visual matching in an interior design context?
2. How can multimodal embeddings (image + text) improve semantic similarity detection?
3. How can subjective aesthetic preferences be modeled through feedback-based learning?
4. How can we balance explainability and performance in a commercial environment?

Tools and Tech Stack

- **Python, PyTorch/TensorFlow, OpenCV, CLIP/ViT**
- **Supabase** as backend (data management)
- **Airtable / n8n** for data flows and validation
- **Next.js / React** for result visualization

Supervision

- **Jeroen Faingnaert (Furnipop)** – company mentor & technical supervisor
- **AI Research Group, Ghent University** – academic supervisor (to be assigned)

Expected Output

- Functional **AI prototype** of the matching engine.
- **Research report** with quantitative evaluation (precision@K, nDCG, F1-score).
- Publishable paper or live demo integrated into the Furnipop platform.

Why It's Exciting for the Student

- Work on a **real-world AI application** with real datasets.
- Freedom to **experiment and publish** within an academic context.
- Experience a **startup environment** with direct impact, fast iterations, and close mentorship.
- Engage with cutting-edge topics like **computer vision**, **multimodal AI**, and **explainable recommender systems**.