# MICHAEL VANDERSTUYFT

Freelance

Computer Vision & AI engineer

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synaptivision.com

## EDUCATION

MSc in Computer Science AI & Graphics Specialization KU Leuven, 2017 - 2019

BSc in Computer Science Minor in Business & Innovation KU Leuven, 2014 - 2017

## TECHNICAL SKILLS

**Programming languages**
**Python** (preferred language)
**CUDA** (Wrote many custom kernels for performance-critical tasks)
**C++** (limited experience)
**MATLAB** (limited experience)
**Machine Learning**
Pytorch, TensorFlow, Caffe, TensorRT, ONNX, SciPy, NumPy
**Computer vision**
Hyperspectral Imaging
Anomaly Detection Segmentation
3D Reconstruction
Object Tracking
Classical methods
Deep learning methods
**Computer graphics**
Blender (expert)
Fusion360 (experienced)
Unreal engine (experienced)
Theory (expert)
**Manufacturing** (hobby)
3D printing fanatic
Laser cutting & CNC
Woodworking
Automation and sensing
Languages
Dutch (native)
English (fluent)
French (intermediate)

## PROFILE

I'm a freelance **Computer Vision & AI engineer** with over 12 years of experience (6+ professional) delivering 30+ vision-driven solutions across industrial, medical, and embedded domains. Specialized in hyperspectral imaging, real-time AI pipelines, 3D vision, computer graphics, technical modelling, rendering, synthetic data, and custom hardware integration. I am a former technical lead in AI and computer graphics with extensive experience in technical interviewing. Available for freelance collaborations, consulting and technical leadership roles

## WORK EXPERIENCE

**Apixa: Technical Lead - AI & Computer Graphics** *2019 - Present* Delivered 30+ advanced state of the art AI and computer vision projects across manufacturing, medical, food processing, robotics, and security. Key achievements include:

- Developed a surgeon grading tool for robotic surgery trainings
- Developed a hyperspectral imaging system to classify products with 95+% accuracy, outperforming previous state-of-the-art by 20%.
- Designed a real-time anomaly detection pipeline for food streams, including foreign object and rodent detection, using lightweight deep learning models.
- Built a photorealistic rendering framework in Unreal Engine 5 for textile simulation at both thread and room scale.
- Created a multi-camera vision pipeline on embedded hardware (Jetson Nano) for real-time security monitoring.
- Automated defect detection in industrial materials using custom tree-based classifiers and deep learning architectures.
- Automated detection of structural elements in low-quality warehouse imagery for real time localization.
- Developed a vision-based system to assist crane operators by detecting human presence in hazardous zones
- Built segmentation models for wood flakes and tree branches to optimize industrial chipping processes.
- Designed a system to match broken components in a production plant to warehouse inventory using visual and textual features.

More projects can be found at synaptivision.com

## AVAILABILITY

Available for freelance opportunities in AI, computer vision, and graphics. Currently dedicating one day per week to developing a proprietary system for **automated hornet nest tracking using drones and computer vision**, with the remaining time open for client collaborations, consulting, and technical roles.