

Maxim Bonnaerens

Ghent – Belgium

+32 496 38 04 77 • maxim@bonnaerens.be • maxim.bonnaerens.com

Education

Ghent University

Doctor of Computer Science Engineering

2018 - 2023

Expected graduation by end 2023

Ghent University

Bachelor and Master of Computer Science Engineering

2013 - 2018

Graduated magna cum laude

Experience

AIRO - IDLab, Ghent University - imec

Ghent

PhD Student

2018 - present

PhD Topic: Resource efficient deep learning for computer vision. During my PhD I primarily focused on pruning methods for object detection and vision transformers as well as the evaluation of hardware-aware NAS approaches. Funded by Research Foundation Flanders until 31/10/23.

OTA Insight

Ghent

Internship

Summer 2017

Data Engineering: identifying the underlying causes of prices difference between websites.

Global Delegation

Ghent

Internship

Summer 2016

Adding support for Oculus Rift in a game library.

Projects

Highlighted Publications.....

Learned Thresholds Token Merging and Pruning for Vision Transformers

Published in TMLR and Presented at ES-FoMo Workshop at ICML 2023

2023

Technique to reduce the computational complexity of Vision Transformers to any desired reduction with minimal loss in accuracy and within a single epoch. First work to extensively combine token pruning and merging.

Anchor Pruning for Object Detection

Published in Computer Vision and Image Understanding

2022

Introduces the concept of anchor pruning in object detection. This technique reduces the computation complexity of the model as well as post-processing and eliminate the need for tuning anchor shapes by introducing overanchored models.

Personal Projects.....

RE-Sport

Embedded AI project

2022-present

Real-time detection of snowboarders on a Jetson Nano receiving camera inputs from a nearby GoPro. System works offline and communication happens through bluetooth and WiFi Direct. Inference engine powered by NVIDIA Deepstream.

Skills

Machine Learning Skills.....

Research experience: Object Detection, Pruning, Convolutional Neural Networks, (Vision) Transformers, Out-of-Distribution Detection

Studied: (Hardware-aware) NAS, Quantization, Diffusion Models, NeRFs, Self-Supervised Learning, Reinforcement Learning

Software Skills.....

Proficient: Python, PyTorch, Linux

Worked with: Tensorflow(Lite) , C/C++ , Java, Kotlin (Android), Go