Andrei-Bogdan Florea

Master's Graduate in Computer Science
Machine Learning Enthusiast

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Education

KU Leuven

Master of Engineering: Computer Science   📅 2023 - 2025

Average grade: 89.67%
Graduated top of the class: Summa cum laude with congratulations of the Board of Examiners
Thesis: Image Segmentation with Weak Supervision
- **state-of-the-art** weakly supervised segmentation on Pascal VOC

University Politehnica of Bucharest

B.Sc. in Computer Science and Information Technology   📅 2019 - 2023

Average Grade: 99.00%
Thesis: Face Components Segmentation Using Generated Facial Images, published at TSP 2024

Work experience

Machine Learning Engineer Intern

Xperi Inc.

📅 July 2022 - August 2023

- Engineered synthetic data generation pipelines in **PyTorch,** using **GANs** and image **super-resolution**
- Improved a human **segmentation** network with the additional synthetic data
- Enhanced a **facial landmark detection** network with synthetic data, with over 30% improvement under extreme head pose angles
- Proposed a method for **automatically labeling facial keypoint visibility**, obtaining high accuracy on datasets with self-occlusions and external occlusions
- Replaced a legacy **head pose estimation** method with a **3D Morphable Head Model** fitting approach, increasing precision and robustness

Other experiences

Machine Learning Summer School

AI-MAS Laboratory, UPB

📅 July 2021 - August 2021

- Attended **lectures** and had **hands-on experience** with concepts of Deep Learning
- Researched ways to improve an **Image and Video Captioning model**

Undergraduate Teaching Assistant

Computer Programming Team, UPB

📅 October 2020 - September 2022

- **Prepared and evaluated assignments** for first-year students (100+ students)
- Learned to **work as a team** with professors and other students to improve the learning experience

Awards

- 2021 - Qualified to the **ACM-ICPC Southeastern Europe Regional Contest**
- 2021 - **First Prize,** iTec Contest, **Algorithmics** Section
- Participated in a **National Olympiad every year** since 5th grade (Informatics, Mathematics, Physics)
- 2013, 2015, 2016, 2017, 2019 - **Bronze Medal**, Romanian National Olympiad in Informatics

Technical Skills

Coding Languages
- Primary: Python, C
- Experienced with: C++, Java, Bash, Haskell, Prolog
- Familiar with: MATLAB, Verilog

Algorithms and Data Structures
Machine Learning and Deep Learning
Technologies: PyTorch, TensorFlow, Keras, Linux, Git

Online Courses

- Machine Learning - Stanford University
- Deep Learning Specialization - DeepLearning.AI
- Python for Everybody Specialization - University of Michigan
- Introduction to Git and Github - Google

Projects

Image Segmentation with Weak supervision

Python, PyTorch, Segment Anything, Neuro-symbolic AI

- Master's Thesis project
- Created a **unified logic-based framework** for learning from any type of weak labels
- Fine-tuned the **Segment Anything model** through weak supervision
- Achieved the **highest mIoU** on Pascal VOC 2012, with an improvement of +5% over existing works

Image and Video Captioning

Python, TensorFlow, Keras

- University project for generating captions of images and videos using the Flickr8k and MSVD datasets
- Hands-on experience with concepts of **Computer Vision** and **Natural Language Processing**
- Improved results through **curriculum learning**