






Andrei-Cristian Baraian

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 <https://github.com/AndreiBaraian>

Summary

Software engineer specializing in Computer Vision and Machine Learning.

Experience

June 2023 - Present

BrightR,
Machine Learning Engineer, Consultant
Cluj-Napoca, Romania

Developed deep learning models for teeth detection and segmentation. Consultant role, part-time.

September 2023 - Present

Gap year
Freelance
South America

Travelled most of South America on my motorcycle, while taking a break from professional life.

Sep 2019 - June 2023

VTT Technical Research Center of Finland
Research Scientist
Oulu, Finland

Developed machine vision and deep learning-based solutions for a wide range of optical measurements in mining, defense, plastics, agricultural and medical domains. Research interests: minimization of manual annotation for instance segmentation models, unsupervised learning for defect detection, image enhancement in medical images, robotics.

Managed and delivered couple of internal projects, leading multi-disciplinary teams (software, optics, electronics).

Relevant research projects: APASSI, EXCEED (mining), AHMED, FOSDIGUM (medical)

Exchange researcher at Karl Storz in Tuttlingen, Germany (3 months).

Positions and time frame:

- Intern: 1st Aug – 30th Sep. 2018
- Intern: 13th Sep 2019 – 30th Sep 2020, 19th April – June 2021
- Research Scientist: June 2021 - June 2023

February 2021 - June 2021

Technical University of Cluj-Napoca
Teaching Assistant
Cluj-Napoca, Romania

Teaching the Image Processing lab at TUCN for 3rd year students, where they learned basic concepts like image manipulation, noise modelling, convolution, etc. and implemented them using OpenCV and C++.

July 2017 - August 2017

Montran
Software Engineer Intern
Cluj-Napoca, Romania

Developed an enterprise web application using Spring Framework and Hibernate for a financial system, similar to one of their products, GPS (Global Payment System).

Education

2019-2021

University of Oulu
Master's degree in computer science, AI Specialization

- Thesis: Particle size distribution based on deep learning instance segmentation, supervisor: Prof. Heikkilä, Janne. Available at <http://jultika.oulu.fi/Record/nbnfio:oulu-202103211425>.
- Erasmus semester at Technical University of Munich, specializing in 3D Reconstruction and Visual Odometry.

2015-2019

Technical University of Cluj-Napoca
Bachelor's degree in Computer Engineering

- Diploma thesis: Improved 3D Perception based on color monocular camera for MAV exploiting the semantic segmentation of images, supervisor: Prof. Nedeveschi, Sergiu
- Erasmus student at University of Limerick.

Publications

Conferences

- Baraian A.**, Nedeveschi S., “: Improved 3D Perception based on color monocular camera for MAV exploiting semantic segmentation of images”, in Proc. of 2019 IEEE International Conference on Intelligent Computer Communication and Processing (ICCP 2019), Cluj Napoca, Romania, September 5-7, 2019
- Baraian, A.**, Kellokumpu, V., Paaso, J., Koresaar, L., & Kaartinen, J. (2022). Computing Particle Size Distribution of Mineral Rocks using Deep Learning-based Instance Segmentation. In 2022 10th European Workshop on Visual Information Processing, EUVIP 2022: Proceedings IEEE Institute of Electrical and Electronic Engineers. <https://doi.org/10.1109/EUVIP53989.2022.9922748>
- Baraian, A.**, Kellokumpu, V., Rätty, T.D., & Kallio, L. (2023). Automatic Fracture Detection and Characterization in Borehole Images Using Deep Learning-Based Semantic Segmentation. *VISIGRAPP*.

Reports

- Lähteenmäki, J. (Ed.), Ahola, P., Baraian, A., Förger, K., Granlund, T., Hopia, J., Kaikkonen, R., Mikkonen, T., Niemirepo, T., Pajula, J., Partanen, J., Pellinen, T., Stirbu, V., & Torhola, M. (2023). *Agile and Holistic Medical Software Development: Final report of AHMED project*. VTT Technical Research Centre of Finland. VTT Research Report No. VTT-R-01079-22 (Research report)

Skills

Python

C/C++

OpenCV

Pytorch

Tensorflow

Matlab

Project infrastructure/DevOps

Docker, Git

Laboratory work

Optics, hardware

Project management

Scientific writing

Web development

Java, Spring framework, Hibernate, Angular

Languages

English

Romanian

Spanish