Jeronim Matijević

Zagreb, Croatia

✉ jeronim96@gmail.com | 🏠 jere357.github.io | 🐙 github.com/jere357 | 🤗 huggingface.co/cropinky | 💼 linkedin.com/in/jere357

Personal Profile

Research engineer with a focus on computer vision. Passionate about neural networks for all purposes, with years of experience in training models for various tasks.

Fields of interest:

- Standard computer vision (classification, object detection, segmentation), generative models, image/video restoration and superresolution, dabbled with depth estimation and neural radiance fields as well.

Work Experience

TensorPix · *Zagreb, Croatia*
Computer Vision Research Engineer · *May 2023 - Current*

- Developing efficient video restoration/superresolution models

Faculty of Electrical Engineering and Computing · *Zagreb, Croatia*
Researcher on the SOVA project · *April 2022 - April 2023*

- A collaboration between academia and industry. We helped develop solutions for inventory management in retail environments using computer vision. **project website**
- Studied the state of the art in depth estimation, neural radiance fields and oriented bounding box detection
- Used my novel evaluation metric to significantly reduce the memory footprint of my network.

AI Technologies, d.o.o. · *Zagreb, Croatia*
Computer Vision Engineer · *April 2021 - September 2021*

- Proof-of-concept project
- Goal of the project was detection of broken insulators on powerlines. Data was gathered from drones.
- The pipeline I constructed took the high quality videos from the NAS disk, downscaled their resolution/FPS and sent them into a insulator detection network. Then it extracted those insulators from the high quality video frames we started from. Those high-resolution insulator images were then sent to a classification network which decided if they were broken or not. All the broken insulators and the ordinal number of the transmission tower were stored in a csv file.
- Closely coordinated with my colleagues who worked as annotators in order for us to have the best possible data

Education

Faculty of Electrical Engineering and Computing · *Zagreb, Croatia*
MSc in Computer Science · *Sept 2018 - Current*

- Courses worth mentioning: Analysis and text retrieval, Neural networks, Artificial Intelligence, Machine Learning, Deep Learning, Statistical Analysis of Data, Advanced Algorithms and Data Structures, Scripting languages, Computer Graphics

Faculty of Electrical Engineering and Computing · *Zagreb, Croatia*
BSc in Computer Science · *2015 - 2018*

- Bsc Thesis: Method for counting people in sequences of images: **youtube clip**

Science and mathematics high school · *Split, Croatia*
High School · *2011 - 2015*

- Participated in physics, math and programming competitions at various levels

Skills

Python	Pytorch (lightning), TF/jax XGBoost, openMMlab tensorboard, wandb, openCV, kornia, sklearn, numpy, multiprocessing
Programming	Linux(7 years, on laptop + dual boot on PC), Docker, instant-ngp, ffmpeg, bash, C/C++, SQL/NoSQL
Miscellaneous	Reading ML papers, Linux, LaTeX(Overleaf), CVAT, git, WeakAuras

University/Hobby Projects

I have created my own website to go in depth on all the projects I've worked on over the years, there i go more in depth explaining what I did and how + I wanted less words in my CV.

My website/blog

Fine tuning dreambooth to generate soccer players with the UCL trophy

Hobby

- I talk about it on **my blog**

A world of warcraft fishing bot using computer vision

Hobby

- Check out the github repository here: **repo link**

Projected GAN for art generation

Hobby

- Check out the demo here: **huggingface space**

Method for People Counting From Image Sequence

Bachelor Thesis, mentor: Sven Lončarić

- Check out the short demo here: **youtube video**

Music genre classification from lyrics

Text Analysis and Retrieval course project

- You can check out the project report here: **Project Report**

Pix2pixGAN for generating facial expressions

Neural Network course project

- You can check out the **Project Report** (This one is in Croatian)

Fine-tuning english GPT-2 for rap lyric generation

Hobby

- Check out the demo here: **huggingface space**

Retinal fluid segmentation using 2D U-net

Graduate project

- This was done as my graduate project, the dataset I had was the same one used in the **Retouch Challenge**. Experimented with different/new loss functions and observed how the end result changes with respect to the loss function with interesting results

Using ESRGAN for achieving superresolution

Seminar Course

- Studied GANs and how they could be used for superresolution in images, and various difficulties the traditional approach had in achieving superresolution

Awards and honors

Leader/Organizer of the sports climbing section at my university, For two years I was responsible for leading the sports climbing section for my university's PE course.
Croatian national high school physics competition 2014,

Languages and hobbies

English Fluent
Croatian Native
Hobbies Working with PC hardware, music, video games, bouldering, film,

References available upon request.