

# Domislović Ilija

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## Personal Profile

A highly motivated and knowledgeable University of Zagreb, Faculty of Electrical Engineering and Computing graduate. Finishing my Ph.D. in Computer Science (defense likely in June). I have experience working in the field of computer vision, image analysis, and embedded programming. My areas of interest include Machine Learning, Computer Vision, Data Analysis, and Embedded Programming.

## Education

### University of Zagreb, Faculty of Electrical Engineering and Computing

Zagreb, Croatia

Ph.D. in Computer Science

Sept 2020 - Current

- Working in the Image Processing Laboratory at the Faculty of Electrical Engineering and Computing
- Focus on the development of white-balancing algorithms
- Assisting fellow students with their bachelor and master thesis projects

### University of Zagreb, Faculty of Electrical Engineering and Computing

Zagreb, Croatia

MSc in Computer Engineering

Sept 2018 - Jun 2020

- MSc Thesis: Method for scene illumination estimation
- **Courses:** Digital Image Processing and Analysis, Natural Language Processing, Advanced Algorithms and Data Structure, Real-Time Systems, Machine Learning, Competitive Programming, Heuristic Optimization Methods

### University of Zagreb, Faculty of Electrical Engineering and Computing

Zagreb, Croatia

BSc in Computer Engineering

Sept 2015 - Jun 2018

- BSc Thesis: Object triangulation using ultrasonic sensors
- Focus on embedded programming

## Work Experience

### University of Zagreb, Faculty of Electrical Engineering and Computing

Zagreb, Croatia

Young researcher

Mar 2020 - Mar 2023

- Worked in a team in collaboration with Huawei
- Developed white-balancing algorithms for use in Huawei phone cameras
- Developed several state-of-the-art white-balancing CNN models
- Created two white-balancing datasets
- Developed solutions published in distinguished journals and international conferences

### CETITEC

Čakovec, Croatia

Development engineer

Jun 2019 - Sep 2019

- Part of a team testing communication capabilities of automotive components
- Developed Linux application for CAN communication
- Adapted Linux drivers for automotive components communication

### Mobilisis

Varaždin, Croatia

Development engineer

Jun 2018 - Sep 2018

- Part of a team that developed an embedded system for fuel in fuel trucks monitoring
- Developed an API for communication of the monitoring systems with a central hub
- Performed stress testing on the created system

## University Projects

### Automated Detection of Hyperpartisan News Articles

Zagreb, Croatia

University of Zagreb, Faculty of Electrical Engineering and Computing

Mar 2019 - Jun 2019

- Analysing news articles from a large scale dataset containing labeled partisan articles
- Using both traditional and learning-based approaches to accurately determine news article partisanship
- **Technical Skills:** Python, TensorFlow, matplotlib, scikit-learn

## Creation of digital photography system

Zagreb, Croatia

University of Zagreb, Faculty of Electrical Engineering and Computing

Sep 2018 - Feb 2019

- Developed a prototype digital camera that can take pictures and store them in memory
- Created using an FPGA board, a camera sensor, and a laptop
- Developed a driver using VHDL that collects data from camera sensor, processes the data to create JPEG, and sends the data to a laptop where the image is displayed
- **Technical Skills:** C, VHDL, Python

## Creation of a smart plug

Zagreb, Croatia

University of Zagreb, Faculty of Electrical Engineering and Computing

Mar 2018 - Jun 2018

- Developed a smart plug prototype accompanied by a web application for consumption tracking
- Created using a ESP8266 with a Wi-Fi module
- The ESP8266 tracks the electricity consumption and stores the data for review
- Developed a website where users can see the consumption statistics of the plug
- **Technical Skills:** C, Javascript

## Skills

**Programming** Python (TensorFlow, OpenCV, NumPy, Scikit-learn. etc.), C/C++

**Miscellaneous** Linux, Microsoft Office, Git, Docker,  $\text{\LaTeX}$

## Publications

### JOURNAL ARTICLES

A more detailed explanation of my research can be found on my website. [Link](#)

Color constancy for non-uniform illumination estimation with variable number of illuminants

Ilija Domislović, Donik Vršnak, Marko Subašić, Sven Lončarić

*Neural Computing and Applications* (Mar. 2023). 2023

Shadows Lumination: Two-illuminant multiple cameras color constancy dataset

Ilija Domislović, Donik Vršnak, Marko Subašić, Sven Lončarić

*Expert Systems with Applications* (2023) p. 120045. 2023

Framework for Illumination Estimation and Segmentation in Multi-Illuminant Scenes

Donik Vršnak, Ilija Domislović, Marko Subašić, Sven Lončarić

*IEEE Access* 11 (2023) pp. 2128–2137. 2023

One-net: Convolutional color constancy simplified

Ilija Domislović, Donik Vršnak, Marko Subašić, Sven Lončarić

*Pattern Recognition Letters* 159 (2022) pp. 31–37. 2022

Autoencoder-based training for multi-illuminant color constancy

Donik Vršnak, Ilija Domislović, Marko Subašić, Sven Lončarić

*J. Opt. Soc. Am. A* 39.6 (June 2022) pp. 1076–1084. Optica Publishing Group, 2022

Illuminant segmentation for multi-illuminant scenes using latent illumination encoding

Donik Vršnak, Ilija Domislović, Marko Subašić, Sven Lončarić

*Signal Processing: Image Communication* 108 (2022) p. 116822. 2022

### CONFERENCE PROCEEDINGS

Filters & Lumination: Creating multi-illuminant images for computational color constancy

Ilija Domislović, Donik Vršnak, Marko Subašić, Sven Lončarić

2023 8th International Conference on Machine Learning Technologies, 2023, Stockholm, Sweden

Outdoor daytime multi - illuminant color constancy

Ilija Domislović, Donik Vršnak, Marko Subašić, Sven Lončarić

2021 12th International Symposium on Image and Signal Processing and Analysis (ISPA), 2021

Illuminant estimation error detection for outdoor scenes using transformers

Donik Vršnak, Ilija Domislović, Marko Subašić, Sven Lončarić

2021 12th International Symposium on Image and Signal Processing and Analysis (ISPA), 2021

## Languages

**English** Professional proficiency

**German** Speaking proficiency

**Croatia** Native proficiency

References available upon request.