


# JOSIP KRAPAC

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## INTERESTS

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Learning to represent structure (graph nodes, sub-graphs, graphs) and using the representation for matching and prediction across domains (natural language, images, biological sequences, 3D shapes).

## WORK EXPERIENCE

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**Zalando SE** March 2024 - Present  
*Principal applied scientist* Berlin, Germany

- Designed improvements of overall search system, extending text retrieval to multi-modal retrieval and similarity-based browsing, improving named entity recognition and auto-suggest.

*Applied science manager* July 2022 - March 2024  
Berlin, Germany

- Co-developed the proof-of-concept for LLM-based conversational shopping assistant (Zalando Assistant) that was spun into a product. Led the AI safety, development of search tool and the evaluation of Zalando Assistant at scale. The Assistant is live in German and English markets.
- Led a 3 person team working on neural models for semantic search matching multi-lingual customer queries to items in the shop. The model is deployed to address a long tail of customer queries.

*Senior applied scientist* June 2019 - July 2022  
Berlin, Germany

- Led the development of text classification model with extreme class imbalance for Product Safety team. The model was deployed with human-in-the-loop and reduced the workload by 50%, allowing focusing of investigations only on cases that are likely to be safety problems.
- Developed and tested semantic search model in collaboration with the search department.
- Developed a method for inferring direct acyclic graphs from hyperbolic space embeddings.

**Mobius Labs GmbH** January 2018 - June 2019  
*Senior computer vision researcher and co-founder* Berlin, Germany

- Developed text-image retrieval model.
- Co-developed video highlights segmentation method.

**EyeEm GmbH** April 2017 - January 2018  
*R&D engineer* Berlin, Germany

- Developed and implemented methods for image tagging.

**Faculty of Electrical Engineering and Computing** July 2013 - March 2017  
*Post-doc* Zagreb, Croatia

- Developed computer vision methods for weakly-supervised semantic segmentation and localization of small objects.

**INRIA Rennes** October 2011 - June 2013  
*Post-doc* Rennes, France

- Developed a computer vision method for fine-grained classification and localization.

## EDUCATION

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## PhD in Computer Science

*University of Caen, Lower Normandy / INRIA Grenoble*

January 2008 - July 2011

*Caen / Grenoble, France*

- Title: "Image representations for ranking and classification".
- Supervisors: prof.dr. Frédéric Jurie (University of Caen, Lower Normandy, GREYC group) / dr. Jakob Verbeek (INRIA Grenoble, LEAR group).
- Work divided between Caen (January 2008 - July 2009) and Grenoble (July 2009 - July 2011).

## MSc in Computer Science

*Faculty of Electrical Engineering and Computing*

2002 - 2006

*Zagreb, Croatia*

- Title: "Background subtraction methods for motion segmentation".
- Supervisor: prof.dr. Slobodan Ribarić.

## SKILLS

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Programming: Python, C/C++

Frameworks: PyTorch, Keras/TensorFlow

Languages: Croatian (native), English (C2), French (B1), German (A2)

## SELECTED PUBLICATIONS

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"**Enhancing Product Safety in E-Commerce with NLP**", Halder; Kishaloy, Krapac; Josip, Goryunov; Dmitry, Brew; Anthony, Lyra; Matti, Dizdari; Alsida, Gillett; William, Renahy; Adrien, Tang; Sinan, *arXiv:2210.14363* (2022)

"**Task-Aware Representation of Sentences for Generic Text Classification**", Halder; Kishaloy, Akbik; Alan, Krapac; Josip, Vollgraf; Roland, *COLING* (2020)

"**Weakly-supervised Semantic Segmentation by Redistributing Region Scores Back to the Pixels**", Krapac, Josip; Šegvić, Siniša, *German Pattern Recognition Conference* (2016)

"**Instance Classification with Prototype Selection**", Krapac, Josip; Perronnin, Florent; Furon, Teddy; Jégou Hervé, *International Conference on Multimedia Retrieval* (2014)

"**Fisher Vectors to Model Spatial Layout for Image Categorization**", Krapac, Josip; Verbeek, Jakob; Jurie, Frédéric, *International Conference on Computer Vision* (2011)

"**Improving Web-image Search Results Using Query-relative Classifiers**", Krapac, Josip; Allan, Moray; Verbeek, Jakob; Jurie, Frédéric, *Computer Vision & Pattern Recognition* (2010)