

University of Groningen

## Data-efficient representation learning for visual place recognition

Leyva Vallina, María

DOI:  
[10.33612/diss.736449452](https://doi.org/10.33612/diss.736449452)

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2023

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*  
Leyva Vallina, M. (2023). *Data-efficient representation learning for visual place recognition*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen. <https://doi.org/10.33612/diss.736449452>

### Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

### Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

---

## Research Activities

### Published work

- **María Leyva-Vallina**, Nicola Strisciuglio, Nicolai Petkov “*Data-efficient Large Scale Place Recognition with Graded Similarity Supervision*”, IEEE Conference on Computer Vision and Pattern Recognition, 2023
- **María Leyva-Vallina**, Nicola Strisciuglio, Nicolai Petkov “*Place recognition in gardens by learning visual representations: data set and benchmark analysis*”, International Conference on Computer Analysis of Images and Patterns, 2019
- Estefania Talavera Martinez, **María Leyva-Vallina**, Md Mostafa Kamal Sarker, Domenech Puig, Nicolai Petkov, Petia Radeva, “*Hierarchical approach to classify food scenes in egocentric photo-streams*”, IEEE Journal of Biomedical and Health Informatics, 2019
- Manuel López-Antequera, **María Leyva-Vallina**, Nicola Strisciuglio, Nicolai Petkov, “*Place and object recognition by CNN-based COSFIRE filters*”, IEEE Access, 2019
- **María Leyva-Vallina**, Nicola Strisciuglio, Manuel Lopez-Antequera, Radim Tylecek, Michael Blaich, Nicolai Petkov “*TB-Places: A Data Set for Visual Place Recognition in Garden Environments*”, IEEE Access, 2019
- Nicola Strisciuglio, **María Leyva-Vallina**, Nicolai Petkov, Rafael Muñoz Salinas, “*Camera localization in outdoor garden environments using artificial landmarks*”, IEEE IWOBI, 2017
- Md Mostafa Kamal Sarker, **María Leyva-Vallina**, Adel Saleh, Vivek Kumar Singh, Farhan Akram, Petia Radeva, Domenech Puig, “*FoodPlaces: Learning Deep Features for Food Related Scene Understanding*”, CCIA (pp. 156-165), 2017.

## Under review

- **María Leyva-Vallina**, Nicola Strisciuglio, Nicolai Petkov, Regressing Transformers for Data-efficient Visual Place Recognition, Under review, 2023

## Research Fund

- Member of the EU H2020 TrimBot2020 project (grant no. 688007)

## Talks

- Poster presentation: *"Data-efficient Large Scale Place Recognition with Graded Similarity Supervision"*, CVPR 2023, Vancouver, Canada
- Oral presentation: *"Generalized Contrastive Optimization of Siamese Neural Networks for Place Recognition"*, Long-term visual localization workshop, ICCV 2021, online
- Poster presentation: *"Place Recognition in Gardens by Learning Visual Representations"*, Alice&Eve 2020, University of Twente, the Netherlands
- Tutorial: *"Convolutional Neural Networks and Deep Learning"*, together with Nicolai Petkov and Nicola Strisciuglio, Winter School of Machine Learning (WISMAL 2019 and WISMAL 2020), Las Palmas de Gran Canaria, Spain
- Oral presentation: *"Place Recognition in Gardens by Learning Visual Representations"*, CAIP 2019, Salerno, Italy
- Oral presentation: *"Towards visual place recognition in garden environments"*, BrainComp Workshop 2019, Cetraro, Italy
- Oral presentation: *"Pose regression in garden environments"*, APPIS 2019, Las Palmas de Gran Canaria, Spain

## Attended conferences

- IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2023, Vancouver, Canada
- IEEE International Conference on Computer Vision (ICCV), 2021, Virtual
- IEEE International Conference on Intelligent Robots and Systems (IROS), 2018, Madrid, Spain
- International Conference on Applications of Intelligent Systems (APPIS) 2018, 2019, 2020, Las Palmas de Gran Canaria
- Agrifood Tech 2019, 's-Hertogenbosch Netherlands

- International Conference on Computer Analysis of Images and Patterns (CAIP) 2019, Salerno, Italy
- EU Industry Days, 2019, Brussels, Belgium

## **Other activities**

- ICVSS, International Computer Vision Summer School, Ragusa, Sicily, July 2018.
- Reviewer for IEEE Access
- Reviewer for Pattern Recognition Letters
- Reviewer for the IEEE European Conference in Computer Vision (ECCV) 2022
- Reviewer for the IEEE International Conference on Computer Vision and Pattern Recognition (CVPR) 2022, 2023
- Reviewer for the IEEE International Conference in Computer Vision (ICCV) 2023

## **Organized Seminars**

- Member of the Organizing committee at APPIS 2018, 2019 and 2020, in las Palmas de Gran Canaria, Spain.

## **Challenges**

- Runner-up in the Visual Place Recognition Challenge at the Long-Term Visual Localization Workshop, ICCV 2021

## **Teaching duties**

- Teaching assistant in the course Pattern Recognition, in the Masters of Computer Science, from the University of Groningen in 2018, 2019 and 2021.

