

Felipe CADAR

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PHD STUDENT

I am a computer science Ph.D. student at the Federal University of Minas Gerais (UFMG), Brazil, and a visiting Ph.D. student at Université de Bourgogne, France. I have been doing research at the Laboratory of Computer Vision and Robotics (VeRLab) since I joined the CS undergrad program in the first semester of 2016. I really enjoy doing research and would love to see my work positively impact someone's life.

EDUCATION

Université de Bourgogne

Doctorant Invité

Hosts: Cédric Demonceaux and Renato Martins

Research Focus: Semantic-Aware Feature Description and Matching

Dijon, France

May. 2023 - Today

Universidade Federal de Minas Gerais

Ph.D., Computer Science

Advisors: Erickson R. Nascimento and Renato Martins

Research Focus: Computer Vision and Machine Learning – Local Image Features

In 2 years, results published at **CVIU 2022**, **CVPR 2023** and **PRL 2023**.

Belo Horizonte, MG, Brazil

Nov. 2021 - Today

Universidade Federal de Minas Gerais

B.Sc., Computer Science

Advisor: Erickson R. Nascimento

While in graduation, I took part in several papers in prestige venues, like **CVPR**, **ICCV**, and **NeurIPS**

Belo Horizonte, MG, Brazil

Feb. 2016 – Nov. 2021

RELEVANT RESEARCH EXPERIENCE

Google AI Research Internship

Google Research

Oct. 2022 – Dec. 2022

Belo Horizonte, MG, Brazil

- This project was an intersection between Computer Vision and Natural Language Processing.
- Trained memory augmented models on new datasets and achieved state-of-the-art results.
- Co-author in one **ICCV** publication.

Nonrigid Local Features

VeRLab

June 2018 – Today

UFMG, Belo Horizonte, MG, Brazil

- Development of visual descriptors for matching nonrigid objects.
- Collected and annotated 2 real world datasets publicly available to the community.
- Co-author in 4 publication in **ICCV**, **CVIU**, **NeurIPS**, and **CVPR 2023**.

More info in <https://www.verlab.dcc.ufmg.br/descriptors/>

Semantic Hyperlapse

VeRLab

April 2016 – Sep. 2018

UFMG, Belo Horizonte, MG, Brazil

- Helped developing a semantic fast-forward method for first-person videos to emphasize important parts while maintaining smooth motion.
- Collected a large multimodal dataset with first person videos.
- Co-author in a **CVPR** publication

More info in <https://www.verlab.dcc.ufmg.br/semantic-hyperlapse/>

AWARDS & HONORS

- ICCV grant to attend the conference - France – Aug. 2023
- CAPES Scholarship for visiting PhD Student in Université de Bourgogne - France – Dec. 2022
- 18th place of 642 teams in Kaggle competition: Google Image Matching Challenge 2022 – Jun. 2022

SERVICE TO THE COMMUNITY

- I was a reviewer at CVPR 2023, ICCV 2023, and 3DV 2024
- I promoted a workshop at the Google's Mind the Gap 2018 event - "Programming for HoloLens"
- I volunteer for UFMG's "Mostra sua UFMG" to help high school students choose a course

JOURNAL ARTICLES

- F. Cadar, W. Melo, V. Kanagasabapathi, G. Potje, R. Martins, and E. Nascimento (2023). "Improving the matching of deformable objects by learning to detect keypoints". In: *Pattern Recognition Letters*, **PRL**. DOI: 10.1016/j.patrec.2023.08.012.
- Potje, G., R. Martins, F. Cadar, and E. Nascimento (2022). "Learning geodesic-aware local features from RGB-D images". In: *Computer Vision and Image Understanding*, **CVIU**. DOI: 10.1016/j.cviu.2022.103409.
- Silva, M., W. Ramos, F. Cadar, J. Ferreira, M. Campos, and E. Nascimento (2018). "Making a long story short: A multi-importance fast-forwarding egocentric videos with the emphasis on relevant objects". In: *Journal of Visual Communication and Image Representation*, **JVCI**. DOI: 10.1016/j.jvcir.2018.02.013.
- Silva, S., F. Cadar, R. Ferreira, and E. Nascimento (2018). "A 3D modeling methodology based on a concavity-aware geometric test to create 3D textured coarse models from concept art and orthographic projections". In: *Computers and Graphics*, **CAG**. DOI: 10.1016/j.cag.2018.09.002.

CONFERENCE PROCEEDINGS

- Mensink, Thomas, Jasper Uijlings, Lluís Castrejon, Arushi Goel, F. Cadar, Howard Zhou, Fei Sha, André Araujo, and Vittorio Ferrari (2023). "Encyclopedic VQA: Visual questions about detailed properties of fine-grained categories". In: *IEEE International Conference on Computer Vision*, **ICCV**.
- Potje, G., F. Cadar, A. Araujo, R. Martins, and E. R. Nascimento (2023). "Enhancing Deformable Local Features by Jointly Learning to Detect and Describe Keypoints". In: *Computer Vision and Pattern Recognition*, **CVPR**.
- Potje, G., R. Martins, F. Cadar, and E. R. Nascimento (2021). "Extracting Deformation-Aware Local Features by Learning to Deform". In: *Advances in Neural Information Processing Systems*, **NeurIPS**. URL: <https://proceedings.neurips.cc/paper/2021/file/5934c1ec0cd31e12bd9084d106bc2e32-Paper.pdf>.
- Nascimento, E., G. Potje, R. Martins, F. Cadar, M. Campos, and R. Bajcsy (2019). "GEOBIT: A geodesic-based binary descriptor invariant to non-rigid deformations for RGB-D images". In: *IEEE International Conference on Computer Vision*, **ICCV**. DOI: 10.1109/ICCV.2019.01010.
- Rezeck, P., F. Cadar, J. Soares, B. Frade, L. Pinto, H. Azpurua, D. Macharet, L. Chaimowicz, G. Freitas, and M. Campos (2018). "An immersion enhancing robotic head-like device for teleoperation". In: *15th Latin American Robotics Symposium*, **LARS**. DOI: 10.1109/LARS/SBR/WRE.2018.00038.
- Rezeck, P., B. Frade, J. Soares, L. Pinto, F. Cadar, H. Azpurua, D. Macharet, L. Chaimowicz, G. Freitas, and M. Campos (2018). "Framework for haptic teleoperation of a remote robotic arm device". In: *15th Latin American Robotics Symposium*, **LARS**. DOI: 10.1109/LARS/SBR/WRE.2018.00039.
- Silva, M., W. Ramos, J. Ferreira, F. Cadar, M. Campos, and E.R. Nascimento (2018). "A Weighted Sparse Sampling and Smoothing Frame Transition Approach for Semantic Fast-Forward First-Person Videos". In: *Computer Vision and Pattern Recognition*, **CVPR**. DOI: 10.1109/CVPR.2018.00253.