Felipe Cadar Chamone

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PhD Student

I am a computer science Ph.D. student at the Federal University of Minas Gerais (UFMG), Brazil. 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.

Relevant Research Experience

Google AI Research Internship Oct. 2022 – Dec. 2022
Google Research *Belo Horizonte, MG, Brazil*

- This project was an intersection between Computer Vision and Natural Language Processing. The work made here is currently submitted to a major venue.
- Trained memory augmented models on new datasets and achieved state-of-the-art results.

Nonrigid Local Features June 2018 – Today
VeRLab *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 April 2016 – Sep. 2018
VeRLab *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/

Education

Universidade Federal de Minas Gerais Belo Horizonte, MG, Brazil
Ph.D., Computer Science *Nov. 2021 - Today*
Research Focus: Computer Vision and Machine Learning – Local Image Features
In 1 and a half year, results published at **CVIU 2022** and **CVPR 2023**.

Universidade Federal de Minas Gerais Belo Horizonte, MG, Brazil
B.Sc., Computer Science *Feb. 2016 – Nov. 2021*
Advisor: Erickson R. Nascimento
While in graduation, I took part in several papers in prestige venues, like **CVPR**, **ICCV**, and **NeurIPS**

Awards & Honors

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

Journal Articles

Melo, F. Cadar W., 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***, (under review).

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

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***, to appear.

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.