Guilherme Augusto Potje

Personal Data

Place and Year of Birth:	Presidente Prudente, SP, Brazil | 1991
Citizenship:	Brazilian
Current Location:	Pampulha Area, Belo Horizonte – MG, Brazil
Email:	guipotje@gmail.com
Webpage:	https://guipotje.github.io

Education

2018 – *Current*
Ph.D. in Computer Science
Federal University of Minas Gerais (UFMG), Belo Horizonte – MG. Brazil.
Fields: Computer Vision and Deep Learning
Research Title: "Towards Deformation-Invariant Image Descriptors"
Advisor: Prof. Erickson R. Nascimento (UFMG)
Co-Advisor: Prof. Renato Martins (UBFC) | Link to project page

2014 – 2016
M.Sc. in Computer Science
Federal University of Minas Gerais (UFMG), Belo Horizonte – MG. Brazil.
Field: Computer Vision
Thesis: "On the Improvement of Three-Dimensional Reconstruction from Large Datasets"
Advisor: Prof. Erickson R. Nascimento (UFMG)
Co-Advisor: Prof. Mario F. M. Campos (UFMG) | Link to thesis

2010 – 2013
Bachelor's Degree in Computer Science
Unoeste – FIPP, Presidente Prudente – SP. Brazil.
Field: Image Processing
Thesis: "Building's Roof Contour Extraction Using LiDAR and Aerial Images"
Advisor: Prof. Mario A. Pazoti (FIPP) | Link to thesis

Publications

2021 **Potje, G.**, Martins, R., Cadar, F., Nascimento, E. R. "Extracting Deformation-Aware Local Features by Learning to Deform". Thirty-fifth Conference on Neural Information Processing Systems (NeurIPS).

2021 Azpúrua, H., Rezende, A., **Potje, G.**, da Cruz Júnior, G. P., Fernandes, R., Miranda, V., ... & Freitas, G. M. "Towards Semi-autonomous Robotic Inspection and Mapping in Confined Spaces with the EspeleoRobô". Journal of Intelligent & Robotic Systems.

2019 Nascimento, E. R., **Potje, G.**, Martins, R., Cadar, F., Campos, M. F., & Bajcsy, R. "GEOBIT: A Geodesic-Based Binary Descriptor Invariant to Non-Rigid Deformations for RGB-D Images". International Conference on Computer Vision (ICCV).

2019 Azpúrua, H., **Potje, G. A.**, Rezeck, P. A., Freitas, G. M., Uzeda Garcia, L. G., Nascimento, E. R., ... & Campos, M. F. "Cooperative Digital Magnetic-elevation Maps by Small Autonomous Aerial Robots". Journal of Field Robotics.

2017 **Potje, G.**, Resende, G., Campos, M. & Nascimento, E. R. "Towards an Efficient 3D Model Estimation Methodology for Aerial and Ground Images". Machine Vision and Applications (MVA).

2016 Macharet, D. G., Perez-Imaz, H. I., Rezeck, P. A., **Potje, G. A.**, Benyosef, L. C., Wiermann, A., ... & Campos, M. F. "Autonomous Aeromagnetic Surveys using a Fluxgate Magnetometer". Sensors.

Work Experience

2017 – 2018 | Research Engineer, VeRLab and Instituto Tecnológico Vale (ITV)

I worked as a Computer Vision research engineer on an R&D project founded by the Instituto Tecnológico Vale (ITV) called "EspeleoRobô". The purpose of the research was to develop an autonomous robot for cavity exploration and tools for immersive visualization and interaction with 3D mapped cavities. In this project, my activities were focused on the 3D data processing by creating a mesh reconstruction pipeline as a software, and also an application to visualize the reconstructed 3D model through the Microsoft HoloLens device. | Link to video

2014 – 2016 | Graduate Research Intern, VeRLab – Computer Vision & Robotics Lab, *UFMG*

During my Master thesis, I worked on a mining research project founded by Instituto Tecnológico Vale (ITV). The focus of the project was to create an autonomous system for aeromagnetic surveys using multiple drones. My activities were centered on coupling 3D reconstruction from images, remote sensing and geophysics. My contributions to the project were on developing a software for 3D reconstruction from images, and a tool for magnetic data processing and data fusion that generates 3D magnetic maps.

| Link to video

Languages

Brazilian Portuguese: Native
English: Fluent

Computational Tools Knowledge

Languages: C, C++, Python, Java, C#, LaTeX, SQL, Javascript, HTML.
Software & Libraries: NumPy, SciPy, OpenCV, PyTorch, Tensorflow, Ceres Solver, Scikit-learn, Git, Linux, OpenGL.

Topics of Interest

General:	Computer Vision, Deep Learning, Photogrammetry, Robotics, Computer Graphics, Artificial Intelligence
Specific:	Image Matching, Structure-from-motion, 3D Reconstruction, 3D Vision