André Gonçalves Mateus

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Short Bio

Since September 2021, I have been a Researcher at Ericsson Research, working with the Cyber-Physical Systems team on Cross-Feature Visual Localization and Mapping, as well as 3D reconstruction of Network Hardware Installations. I hold a M.Sc. (2015) and a Ph.D. (2022) in Electrical and Computer Engineering from Instituto Superior Técnico, Universidade de Lisboa. My research interests include Computer Vision and Robotics, particularly Visual Servoing; Active Vision; Structure-from-Motion; and SLAM.

Experience

- **Senior Researcher [2023-]** at Ericsson Research, Stockholm;
    - Main responsibilities:
        - Development of scaling and densification methods for sparse Structure-from-Motion 3D models, based on Neural Radiance Fields principles;
        - Enable visual localization between heterogeneous visual odometry and/or SLAM algorithms using different feature descriptors (e.g., SIFT and ORB), the work resulted in a paper to appear in ICCV 2025;
        - Registration of Structure-from-Motion maps without feature descriptors, the results were published in CVPR 2025;
        - Supervision of Master's thesis students (two), PhD students (two), and interns (two).
    - Received Key Contributor Award 2023
    - Complete the Leaders Core Curriculum course
- **Experienced Researcher [2021-]** at Ericsson Research, Stockholm;
    - Main responsibilities:
        - Development of a full Structure-from-Motion pipeline based on panoramic images;
        - Enable visual localization between heterogeneous visual odometry and/or SLAM algorithms;
        - Supervision of research interns (three), Master's thesis students (three), and a PhD student.

Activities

- **Research Assistant [2015-2021]** at Institute of Systems and Robotics, Lisbon

Education

- **Ph.D. in Electrical and Computer Engineering [2017-2022]** from Instituto Superior Técnico, University of Lisboa;
    - Ph.D. Thesis: “On the Exploitation of 3D Straight Lines for Active Mapping and Camera Localization”.
    - Graduated with Distinction and Honours.
- **M.Sc. in Electrical and Computer Engineering [2012-2015]** from Instituto Superior Técnico, University of Lisboa;
    - Major in Systems, Decision, and Control;
    - Minor in Computers;
    - Master's Thesis: “Human-Aware Navigation in Networked Robot Systems”
- **B. Sc. in Electrical and Computer Engineering [2009-2012**] from Instituto Superior Técnico, University of Lisboa.

Research Projects

- **INSIDE**–Intelligent Networked Robot Systems for Symbiotic Interaction with Children with Impaired Development;
    - Funded by the Portuguese Foundation for Science and Technology
    - Research Assistant [2015-2017];
    - In charge of system architecture and module integration in ROS.
- **SocRob**–Soccer Robots and Society of Robots;
    - Funded by the Institute for Systems and Robotics in Lisbon
    - Research Assistant [2014-2016];
    - Responsible for person detection and tracking.
- **STORE-SLAM**;
    - Funded by Instituto Superior Técnico in Lisbon
    - Ph. D. Grant [2021]
    - Co-supervision of research interns working in developing a Visual SLAM algorithm for mobile robots operating in retail stores.
- **CooPerNav**–System for Cooperative Perception and Navigation
    - Funded by Vinnova
    - Industrial Partner Principal Investigator [2024-]

Awards

- Academic Merit [2012,2013]

Research Grants

- **Ph. D. grant [2017-2021]**
    - Awarded by the Portuguese Foundation for Science and Technology (FCT). Reference: PD/BD/135015/2017

Selected Publications - complete list available at my Google Scholar

- J. Edstedt, A. Mateus, A. Jaenal. *ColabSfM: Collaborative Structure-from-Motion by Point Cloud Registration*. IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2025.
- A Mateus, S Ranade, S Ramalingam, P Miraldo. *Fast and Accurate 3D Registration from Line Intersection Constraints*. International Journal of Computer Vision (IJCV), 2023.
- A. Mateus, O. Tahri, A. P. Aguiar, P. U. Lima, and P. Miraldo. *On Incremental Structure-from-Motion using Lines*. IEEE Transactions on Robotics (T-RO), 2021.
- A. Mateus, S. Ramalingam, and P. Miraldo. *Minimal solvers for 3d scan alignment with pairs of intersecting lines*. IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2020.
- A. Mateus, D. Ribeiro, P. Miraldo, and J. C. Nascimento. *Efficient and Robust Pedestrian Detection using Deep Learning for Human-Aware Navigation*. Robotics and Autonomous Systems (RAS), 113:23–37, 2019.

Languages

- **Mother tongue:** Portuguese
- **Foreign language:** English (proficient), Swedish (Basic)