Matthieu Zins

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EXPERIENCE

INRIA | PhD Student in Computer Vision
Oct 2019 - Dec 2022 Nancy, France

Visual Localization in a scene of objects

- Focusing on camera pose estimation in complex environments using objects as high-level semantic landmarks for Augmented Reality (AR).
- Combine geometrical reasoning with recent deep learning approaches.
- Development of an object-based visual SLAM system offering automatic semantic mapping and robust relocalization.
- Publications in top international journal and conferences: IJCV, 3DV, IROS, ISMAR.
- Codes (Python and C++) released at `gitlab.inria.fr/tangram`.

KITWARE | Computer Vision Engineer
Oct 2017 – Sep 2019 Lyon, France

- I have worked on various projects including 3D reconstruction, SLAM, calibration, point cloud analysis, texture mapping and satellite imagery.
- Algorithms development for different RGB-D sensors: Kinect Azure, Pico Flexx, Intel RealSense depth and tracking cameras.
- Contributions to KWIVER, an open-source toolkit for computer vision (C++).
- Development of texture mapping algorithms for a large research project about urban semantic 3D reconstruction from multi-view satellite imagery.
- Scientific papers review and presentation to the team.

SICK IVP | Master Thesis in Computer Vision
Jan 2017 – Aug 2017 Linköping, Sweden

Color Fusion and Super-resolution for Time-of-Flight 3D Cameras

- Sensor fusion between a time-of-flight camera and a color camera.
- Super-resolution techniques for depth cameras.

DELTACAD | Software Engineer Intern
Aug 2015 – Feb 2016 La Croix Saint Ouen, France

Algorithmic processing for a Virtual Reality application (C++)

- Parallelization of geometric processing with multithreading.
- Recognition of 3D annotations.
- Optimization of the import of 3D models: obj, 3dxml, collada, vrml, stl.
- Optimization of the 3D viewer.
- Automatic deployment in a VR environment.

COMPETITIONS

I regularly participate in Computer Vision / programming competitions (**TopCoder**):

- Circle Finder: Detection in satellite images | Python | *2nd place*
- Fault Detection in a 3D Seismic Volume | C++ | *3rd place*
- Codebase Fixes and Performance Optimization | C++ | *1st place*
- 3D-Mesh to Polyline Sticks Conversion | C++ | *2nd place*
- Calculation of Auxiliary Data for Geologic Fault Utilities | C++ | *2nd place*

AWARDS

2019 Best paper Award of the 2019 CVPR Workshop EarthVision (as co-author)

EDUCATION

UNIVERSITÉ DE LORRAINE
PhD in Computer Science
Oct 2019 - Dec 2022 France

LINKÖPING UNIVERSITY
MSc in Computer Science
Sep 2016 - Oct 2017 Sweden

UNIVERSITÉ DE TECHNOLOGIE DE COMPIÈGNE
Engineering Degree in Computer Science
Aug 2012 - Oct 2017 France
Specialization in Real-time and Embedded Systems

TU CHEMNITZ
Exchange Semester
Mar 2014 - Aug 2014 Germany

LYCÉE HENRI NOMINÉ
Baccalauréat scientifique
Sep 2009 - Jun 2012 France
Obtained with highest honors

SKILLS

PROGRAMMING

Languages:
C++ • Python • C • Matlab

Libraries:
NumPy • SciPy • PyTorch • OpenCV • Ceres-solver • g2o • Eigen • PCL • VTK • OpenGL • CUDA • Qt • GDAL

Other:
Linux • Windows • Git • CMake • VS Code• Qt Creator • ParaView • Blender • Meshlab

LANGUAGES

- French: Native speaker
- English: Proficient user (C1 level)
- German: Proficient user (C1 level, no practice since 2014)

OTHER

Sports: hiking, trail, swimming