You are invited to the 56th edition of the PRAGUE COMPUTER SCIENCE SEMINAR

TORSTEN SATTLER

Machine Learning for Three-Dimensional Reconstruction and Visual Localization

The lecture will be followed by a discussion

December 14, 2023
4:15pm

Auditorium S5, MFF UK
Malostranské nám. 25,
Praha 1

ABSTRACT

Reconstructing objects and scenes from a set of images (the 3D reconstruction problem), as well as estimating the position and orientation from which images were taken (the visual localization problem), are fundamental problems in computer vision, with applications in autonomous driving, augmented reality and robotics, among others. In this talk, we will discuss recent advances in both 3D reconstruction and visual localization that have been made possible through machine learning. Starting with the 3D reconstruction problem, this talk will first discuss recent state-of-the-art algorithms to produce (close-to) photorealistic scene representation by estimating so-called neural radiance fields. The second part of the talk will focus on the visual localization problem. In particular, we will discuss using accurate (and less-accurate) 3D models to allow robust camera position and orientation estimation. In addition, we will discuss privacy aspects of the visual localization problem.

ABOUT THE PRAGUE COMPUTER SCIENCE SEMINAR

The seminar takes place once a month on Thursdays at 4:15pm (mostly excluding June to September, and December) alternately in the buildings of Faculty of Electrical Engineering, Czech Technical University in Prague, Karlovo nám. 13, Praha 2 and Faculty of Mathematics and Physics, Charles University, Malostranské nám. 25, Praha 1. Its program typically consists of a one-hour lecture followed by a discussion. The lecture is based on an (internationally) exceptional or remarkable achievement of the lecturer, presented in a way which is comprehensible and interesting to a broad computer science community. The lectures are in English.

Torsten Sattler is a Senior Researcher at the Czech Institute of Informatics, Robotics and Cybernetics (CIIRC) at the Czech Technical University (CTU) in Prague, where he is currently building up his own research group working on 3D computer vision and machine learning. Before, he was a tenured Associate Professor at Chalmers University of Technology in Gothenburg, Sweden, after 5 years at ETH Zurich, Switzerland, first as a PostDoc and later as a Senior Researcher. He obtained his PhD from RWTH Aachen University in Germany. He is actively involved in the computer vision community, organizing workshops, tutorials and conferences (he is currently a program chair for the European Conference on Computer Vision 2024). His research focuses around developing robust and reliable 3D computer vision algorithms for applications such as Mixed Reality, Self-Driving Cars, and Robotics. To this end, he works on integrating higher-level scene understanding into techniques such as visual localization and mapping. Torsten is named as one of the top-10 Computer Science Scientists in the Czech Republic by research.com.

Contact: info@praguecomputerscience.cz
Information: www.praguecomputerscience.cz