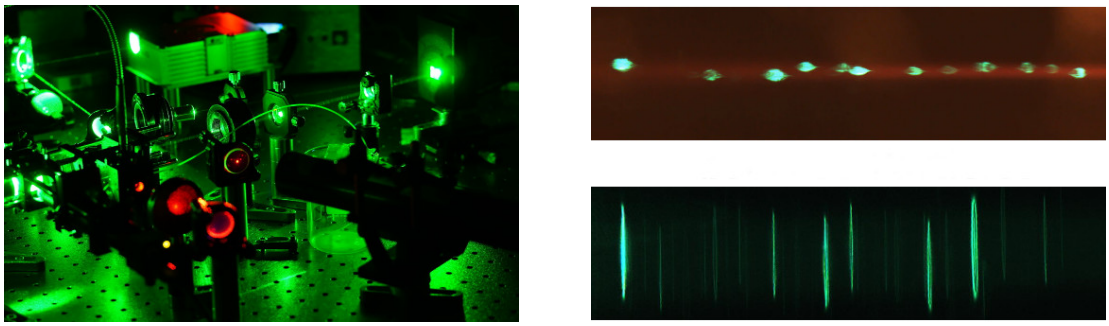
Learning, Recognition & Surveillance Group
Institute of Computer Graphics and Vision (ICG)
Graz University of Technology

Visual Tracking and Detection for Nanomedicine Applications

Master's Thesis, Seminar Project



The laser/camera setup (left) records particles moving within a fluid (right).

Objective:

Photons can be used to manipulate nano-particles by photon-momentum transfer. Laser beams can be used to detect, separate and filter nano-structured particles, which are important tasks for nanomedicine applications. Observing their motion upon laser excitation allows us to determine intrinsic properties of such particles. In this project, we aim to automatically detect and track nano-particles from microscopy images.
This project will be conducted in cooperation with researchers from the Medical University of Graz. In particular, the Institute for Biophysics will provide microscopy image sequences of nano-particles (see Figure) and their expertise to implement suitable motion models for the tracking algorithm. Students will have the opportunity to work with high-end algorithms for detection and tracking.

Qualifications:

- Basic knowledge in Computer Vision
- Programming skills: C++ and/or MATLAB

Contact ICG:

Horst Possegger
possegger@icg.tugraz.at

Contact Biophysics:

Christian Hill
christian.hill@medunigraz.at