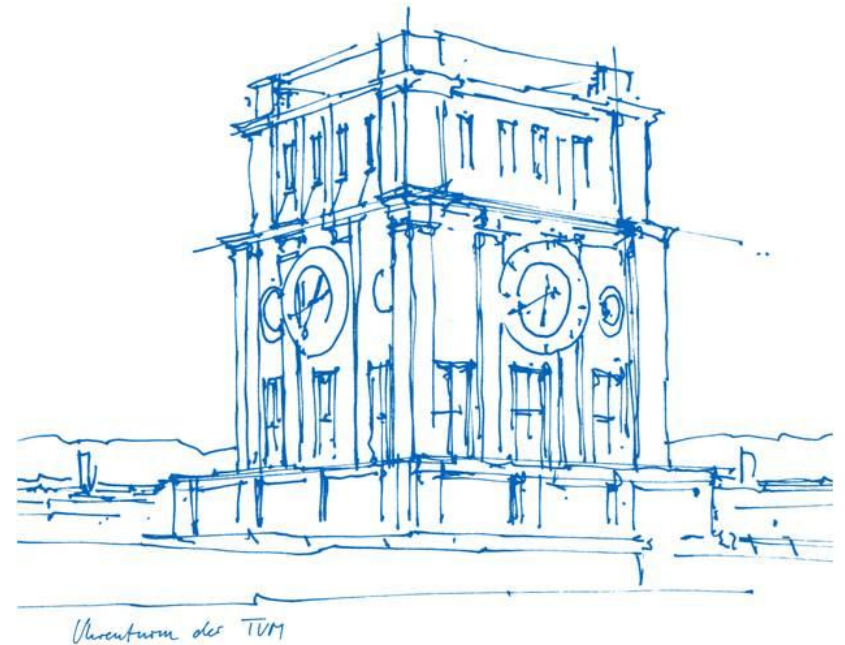


# Learning For Self-Driving Cars and Intelligent Systems

Practical Course

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WS 2019/20



# Introduction

- Masters practical course
- Data modalities: images, GPS, IMU, point clouds, sets, graphs etc.
- Research oriented projects
- 2 persons per each group
- Dynamic research goals
- One-on-one meetings with supervisors for updates and resolving issues.
- (Bi-/)weekly presentations and summaries
- Every Tuesday, 2-4 pm, 03.11.018

# Prerequisites

- Proficient in python programming and version control (git)
- Comfortable with DL frameworks: PyTorch, Tensorflow
- Good knowledge of basic mathematics, linear algebra, numerics, analysis etc.
- Participation in at least one of the offered deep learning lectures at TUM

# Application

- Assignment via the matching system <http://docmatching.in.tum.de>
- Select your preference of the lab course between 19.Jul-24.July on the system
- Application documents to be sent separately
- **Send your CV and Transcripts by 24 July to:** [intellisys-ws19@vision.in.tum.de](mailto:intellisys-ws19@vision.in.tum.de)
- Please see the email format on the next slide
- We can only consider candidates who applied to the matching system **AND** sent their application documents

# Application Email Format

In order to easily evaluate your profile for matching, we ask you to follow the format below:

*Subject: Application [Your Matriculation Number]*

*In the body please give at least the following details:*

- *Matriculation #:*
- *Name:*
- *Name of Degree:*
- *Masters Semester #:*
- *Average Grade:*
  - *Bachelor:*
  - *Master (For the previous semester, if available)*
- *List of Relevant courses taken with grade*

Please also attach your CV and transcripts with the email.

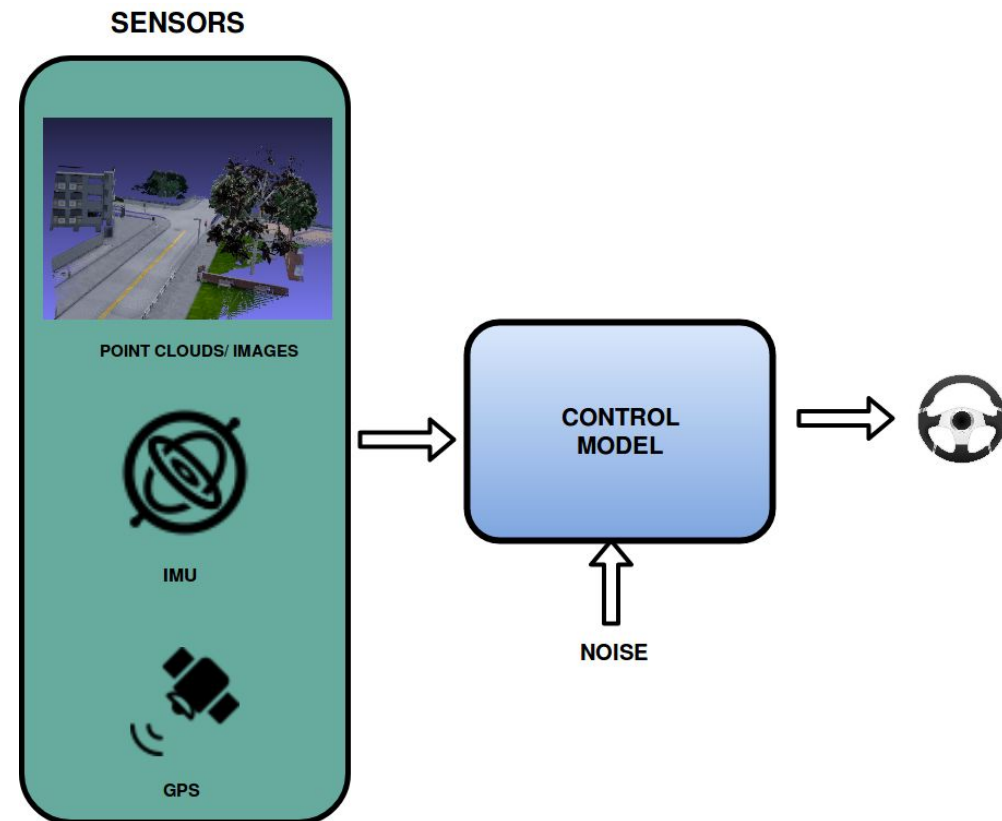
Feel free to share any additional documents, information (for eg. link to git, past research projects) that could support your application.

# Projects

- Practical project experience with real-world open problems
- State-of-the-art research challenges
- Project Assignment to be done at the beginning of semester
- Projects specifics will be given determined later
- Nevertheless, you can find general research areas in the next slides

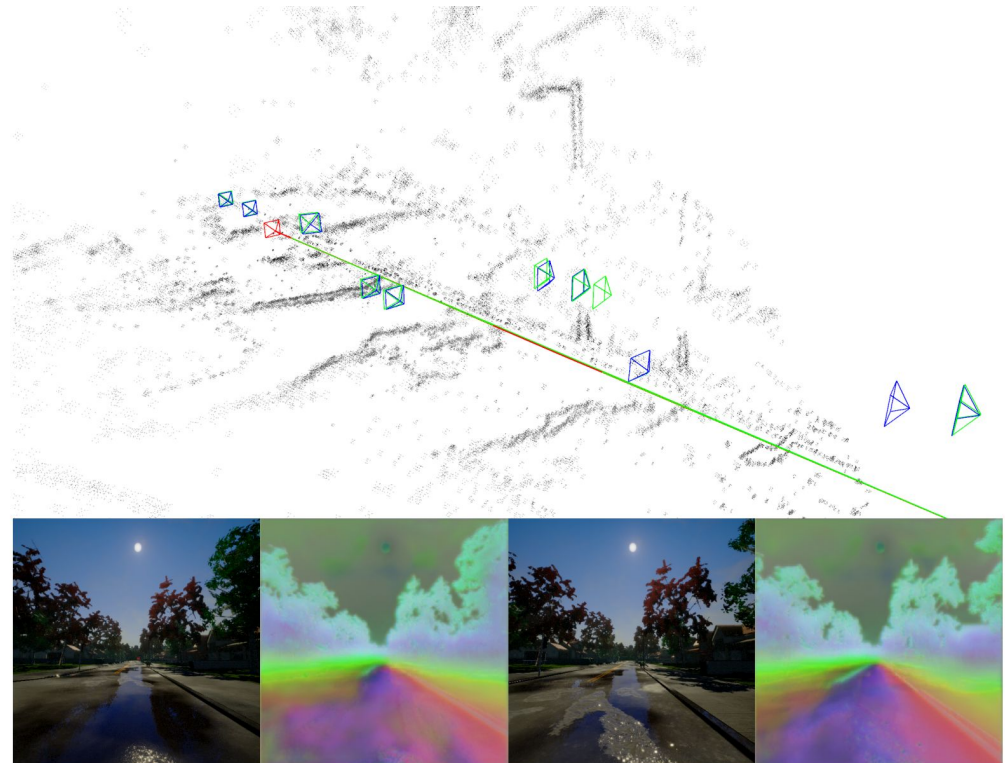
# Projects

- Robot control
  - Embodied agents
  - Robustness to noisy data
  - Multiple Input Modalities



# Projects

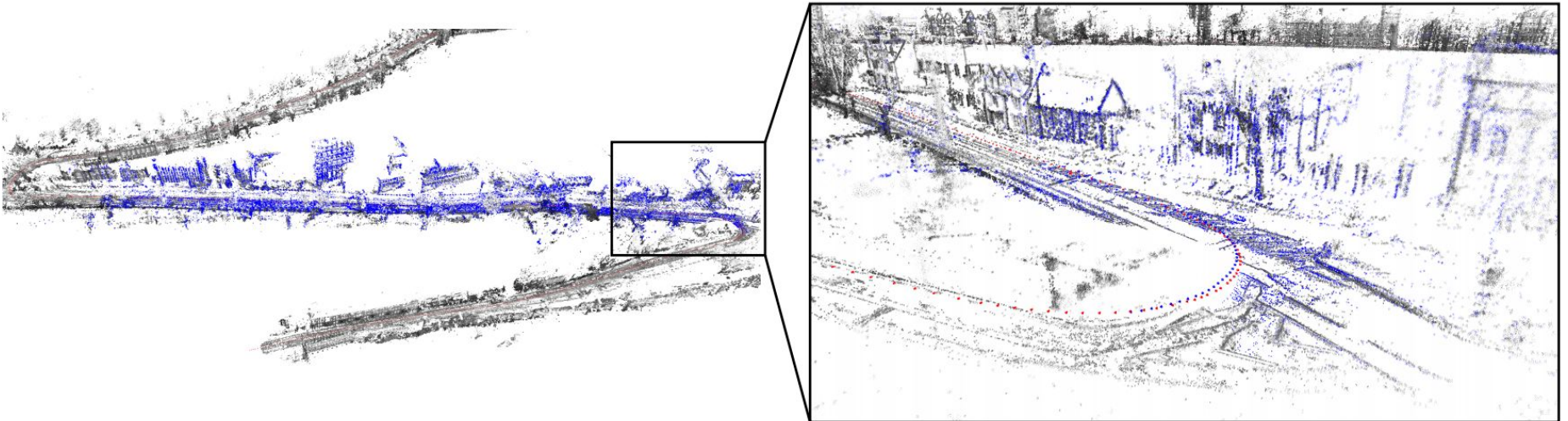
- Perception for self-driving cars
- Visual SLAM
- Environmental understanding





# Projects

- Localization and mapping for self-driving cars
  - using point clouds
  - using images



# Projects

- Uncertainty estimation
- Robustness analysis
- Generative modeling
- Beyond neural networks ...

