Learning For Self-Driving Cars and Intelligent Systems
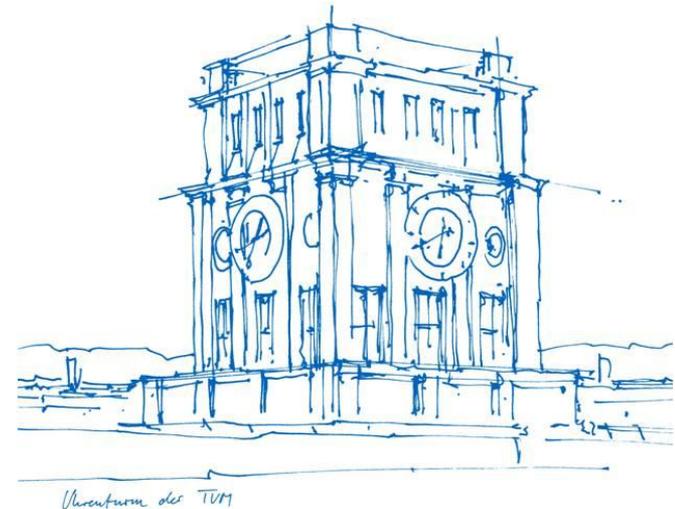
Practical Course

Qadeer Khan, Prof. Dr. Daniel Cremers

Winter Semester 2020/21

Course webpage:

https://vision.in.tum.de/teaching/ws2020/intellisys_ws2020

Introduction

- Masters practical course

- Data modalities: images, GNSS, 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

- Final Presentations

- Weekly summaries of the work progress

- Wednesdays, 2-4 pm

Prerequisites

- Proficient in python programming

- Familiar with 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

- Assignement via the matching system: https://matching.in.tum.de/

- Select your preference of the lab course between 16. July to 21 July on the system

- Application documents to be sent separately

- **Send your CV and Transcripts by 22 July 2020 to**: intellisys-ws20@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 remember also attach your CV and transcripts(Bachelor and Master) 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 decided later

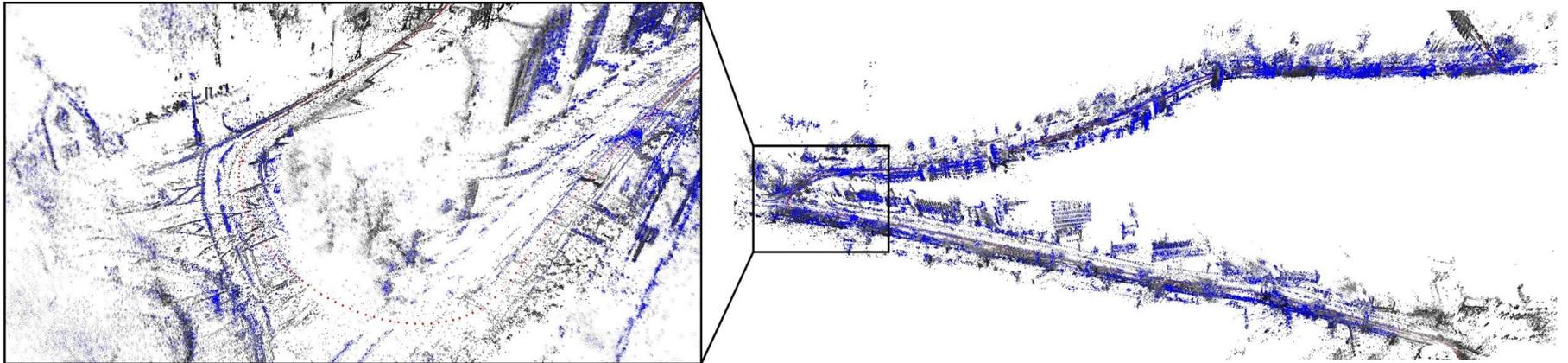- Nevertheless, you can find general research areas in the next slides

Projects

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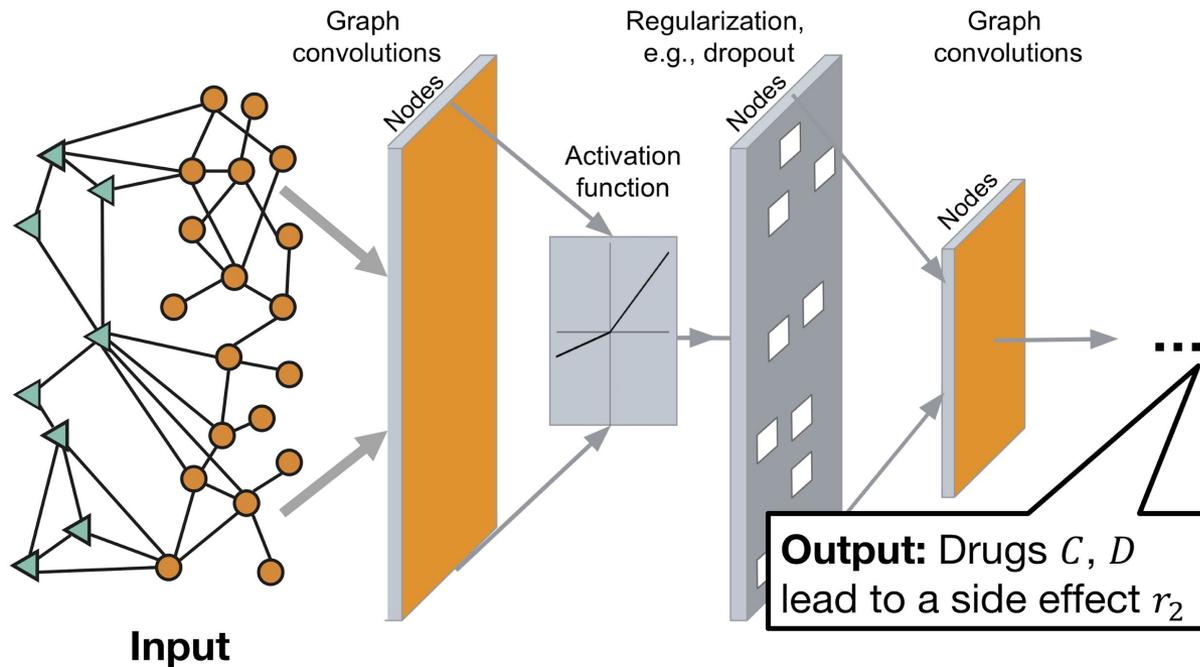 - Multiple Input Modalities
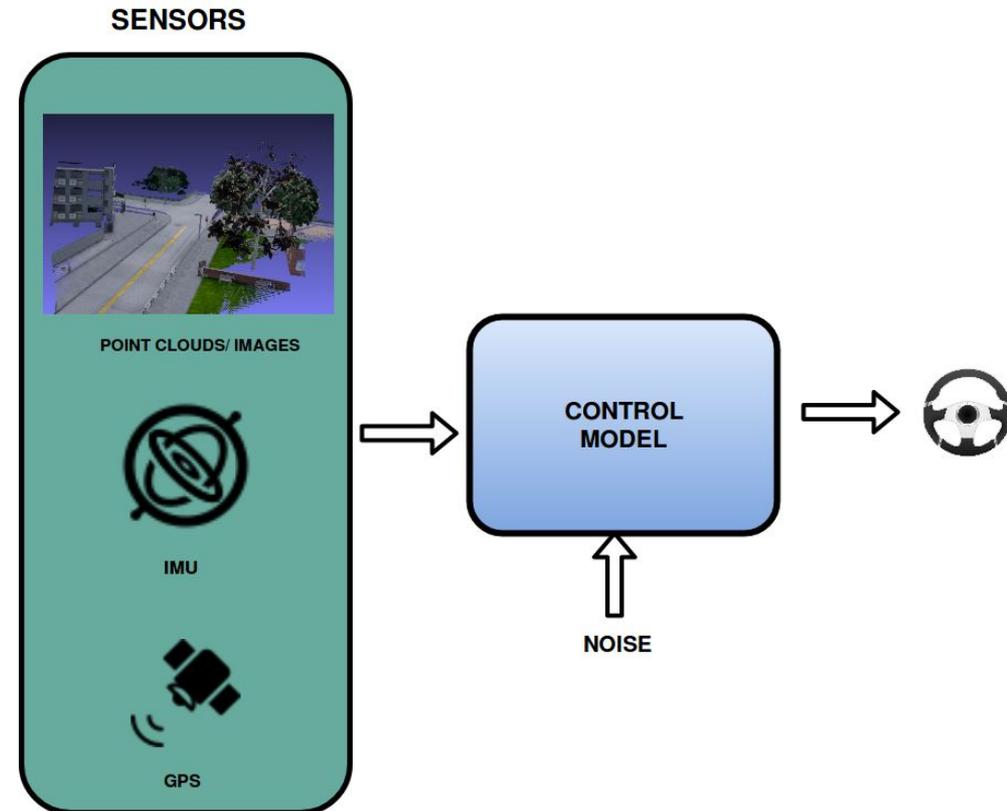
Projects

- Perception for self-driving cars

- Environmental understanding

- localization

Reference: https://arxiv.org/pdf/1904.11932.pdf
Accessed on: 13.07.2020

Projects

- Learning on Graphical Networks,
    - Social Networks, Internet, Molecules /Drug discovery etc.

Reference:http://snap.stanford.edu/decagon/decagon-overview.png
Accessed on : 13.07.2020

QUESTIONS