CV & ML diploma projects at Viscando

The context

Traffic is complex! It is the sum of road design, road user behavior and their interactions. Understanding this dynamic is central to making the transport system efficient, safe and sustainable. Data and insights from traffic are also at the very core of Smart Cities and for the development of coming autonomous vehicles.

In this digital transformation of the transport network, Viscando works closely with both cities and the automotive industry. Our role is to provide key enabling insights from data collected with 3D & AI sensors. Detailed movement data for each and every road user - pedestrians, bicyclists, and vehicles - is registered and analyzed to understand mobility bottlenecks, traffic safety issues and for assessment of changes in the infrastructure. Viscando's solution is used in increasing number of European countries and has also attracted wider international attention. Several research and development projects with the automotive are ongoing and planned.

To address the trends of increasing traffic complexity and emergence of automated and autonomous vehicles, and to meet the needs for more detailed and accurate traffic analytics, we are continuously conducting research and development within the company. We are focusing on more accurate and efficient AI algorithms running on edge and cloud, advanced data analytics and safety measures, and data-driven traffic insights for verification and assessment of autonomous driving vehicles. We are searching for ambitious and high performing students with excellent academic records who are interested in a Master Degree project at Viscando within one of these topics.

If you share our passion for future mobility and traffic safety and are excited about AI, signal processing, simulations and statistical data analysis, then we can offer master project in one of the following directions.

Accurate traffic measurements at high frame rate enabled by efficient use of computational hardware

- Efficient AI running on edge, and strategies for distributed edge-cloud AI implementations
- Prototyping AI algorithms in new commercial hardware and software solutions tailored for Smart Cities applications

Precise traffic measurements enabled by advanced online and offline tracking over multiple cameras

- Efficient and accurate online and offline tracking methods
- Tracking over multiple camera systems with overlapping and non-overlapping fields of view

Production and use of synthetic data for training and verification of the sensor algorithms

- Use of open-source simulator tools to produce 3D assets and to visualize complex scenarios
- Use of synthetic data for training and validation of AI algorithms

Traffic interaction data analysis for scenario-based verification and safety assessment of road infrastructure and autonomous vehicles

- Parametrization and extraction of different types of scenarios from the collected data
- Using scenario parameter statistics for accident rate prediction
- Modelling human behavior in traffic interactions, and use of the behavior models in simulations to predict accidents

Interested? Please contact Yury Tarakanov at yury@viscando.com or by phone +46 725 21 12 00 for more information.

We accept applications by email. Write to yury@viscando.com and tell about yourself, as well as what topic you would like to do a Master Degree project within, and how it fits your education and interests. Make sure to attach your CV and transcripts too. We interview applicants continuously so apply already today!