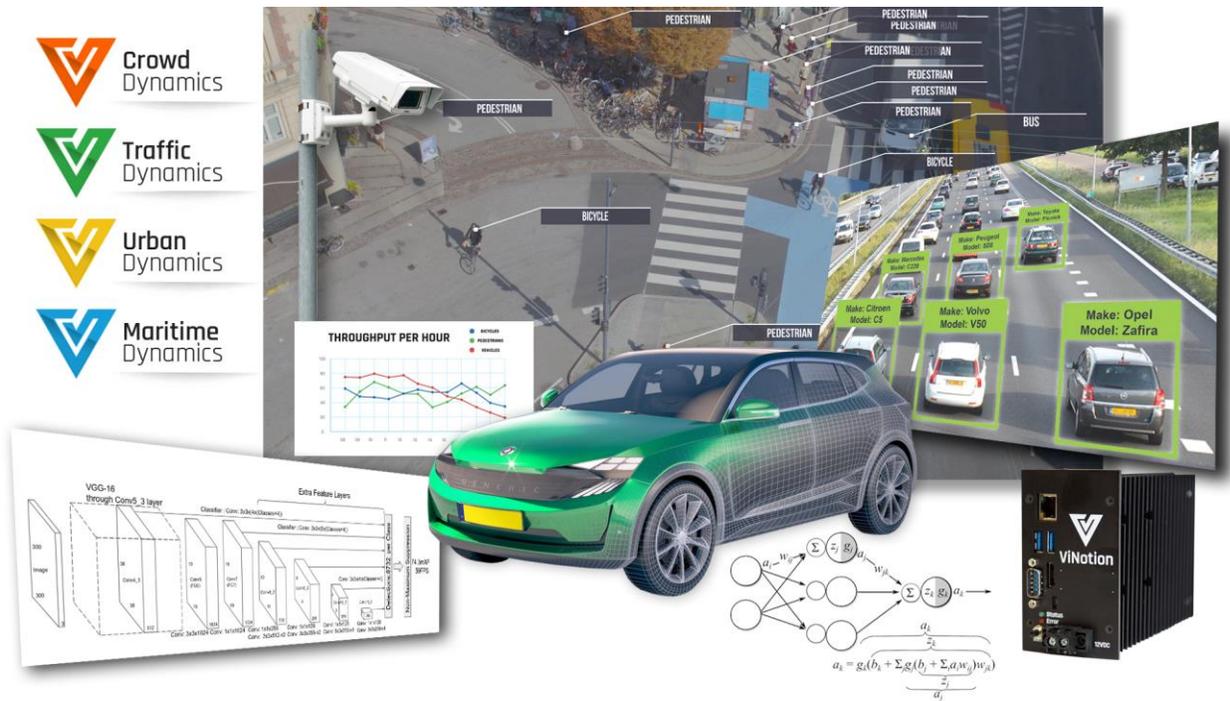**ViNotion**
Making surveillance smart

Thesis Assignments: Deep Learning for Traffic Analysis

Summary

ViNotion is a high-tech company specialized in computer vision for traffic analysis. With our ViSense products we measure traffic to improve the safety on roads/streets and provide valuable insights in the statistics of traffic flow. We do this on a daily basis for customers such as the municipalities of Amsterdam, Utrecht and Eindhoven, the National Police, Rijkswaterstaat and the Nationale Spoorwegen. You will work on the latest state-of-the-art algorithms to improve the performance of the existing systems and use these tools to develop new features. Do you want to apply CNNs for complex vehicle recognition, use GANs to generate images of vehicles, use 3D gaming engines to create synthetic content or use knowledge transfer to learn Internet image databases? We have exciting assignments that combine academic research with industrial applications. By combining your expertise and interests, we guarantee you will have a great project in our research team!

Who will you be working with?

Most of our employees have a strong technical background. In fact, most of our team has an MSc degree and four are pursuing a PhD degree in computer vision. With a large track record of supervision of internships, graduation and PhD trajectories, we offer good support and supervision during your assignment. Technically, we have experience in algorithms, coding, the Linux OS, deep learning frameworks and embedded hardware platforms. You will be working in an enthusiastic team that is eager to see what you are developing!

Who are you?

We are looking for candidates that like to apply their theoretical knowledge to practical real-world problems.

- Do you have good programming skills (Python / C++)?
- Do you have a strong background on computer vision / deep learning algorithms?
- Can you think out of the box and think you can improve every paper you read?
- Do you want to apply your academic knowledge to real challenging industrial problems?
- Do you enjoy your work directly being integrated in our products and used by our customers?

What will you be working on?

We have several challenges that you can work on. In our experience, we should define your assignment together. By starting from your experience and knowledge, we can define the optimal path for an interesting and challenging assignment. Possible topics are:

- Speed-up the recognition CNNs
- Removing person identity for privacy using Generative Adversarial Networks (GANs)
- Domain transfer to aid learning traffic models using different image sources
- The recognition performance using synthetic data from 3D gaming engines
- Who needs separate detectors and trackers? Let's build a true video CNN
- Pose estimation for vehicles and ships for accurate scene reconstruction
- Scene-specific recognition models using unsupervised learning

What do we offer?

- 9-12 month thesis assignment at ViNotion office in Eindhoven
- Integration of your work in our products
- Working as a team player in the research group
- Extensive supervision from skilled researchers
- Possibility to publish your work on a major computer vision conference
- Monthly financial compensation

Send us an email at rob.wijnhoven@vinotion.nl or call us at 040 23 66 761.

Making surveillance smart
together with you?