

Multi-Target Multi-Camera tracking (MTMC)

Company Name: ENGIE Lab CRIGEN

Workplace Address: 4 Rue Josephine Baker 93240 Stains - France

Estimated start date of internship: 01/04/2020

Estimated end date of internship: 30/09/2020

Area of specialisation of the student: Artificial Intelligence - Computer Vision

Field of work of the company: ENGIE is a global player in the energy sector, resolutely committed to the energy transition and expert in 3 business lines: electricity, natural gas and energy services. ENGIE has 153,090 employees in more than 50 countries for a 2016 turnover of 66.6 billion euros. In search of innovative and motivated professionals to embody the future of energy at the service of its customers, ENGIE recruits thousands of talents around the world. Interns will join a world of fulfilling and innovative work, promoting agility and creativity to meet the energy challenges of today and the future. ENGIE Lab CRIGEN is the center of research, development and operational expertise dedicated to gas, new energies, and new technologies. Located in the Paris region in the city of Stains (93240), it has 200 employees. It provides tested, proven and marketable industrial applications, and is committed to sharing novel ideas, scientific knowledge, and technical expertise. Its ability to innovate is a key advantage for the ENGIE Group.

Description of the internship offer:

Multi-Target Multi-Camera tracking consists of detecting, identifying and tracking objects in multiple videos. Generally, this kind of algorithm is based on different modules as a detector, single-camera tracking, pixel to GPS and re-identification (RE-ID).

Multi-Target Multi-Camera tracking is used for intelligent transportation systems (ITS).

The subject of this internship is to review and develop a Multi-Target Multi-Camera tracking based in the modules already developed in our laboratory.

Methodology:

Do a review of the state of the art.

Experiment and implement the different techniques proposed in the literature.

Propose and implement a different solution.

Test and compare the algorithms.

Publish and divulge the results.

Required Skills (if any):

Knowledge of deep learning techniques applied to computer vision: deep convolutional networks, autoencoders, image (pre)processing, regularization

Understanding of standard computer vision techniques: filtering, transformations, descriptors and detectors

Knowledge and understanding of the mathematics underlying all of the above: probability and statistics, optimization, linear algebra, numerical computation

Strong Python skills

Familiarity with one of the Deep Learning frameworks and tools like Tensorflow, Keras, PyTorch.

Disciplined self-starter, able to be highly productive both working alone and within an agile development team

Experience with the UNIX environment

Fluent in English