



International Society of Photogrammetry and Remote Sensing (ISPRS) TC II Symposium was held on 3-7 June 2018 in Riva del Garda, Italy. In that time, I just graduated from Faculty of Geo-Information Science and Earth Observation (ITC) University of Twente and continued my research with my supervisors in campus. During my theses, I wrote a paper for ISPRS TC II Symposium. The title is "Fully Convolutional Networks for Ground Classification from LIDAR Point Clouds". The paper was accepted as oral presentation. The ISPRS Foundation (TIF) gave me a chance to attend the symposium. I applied the travel grant and was accepted. Thank you TIF.



Me and other TIF travel grant participants with Prof. Dr.-Ing. Christian Heipke

## The Event

The symposium was opened by Dr. Fabio Remondino in a plenary session, followed by Davide Scaramuzza as a keynote speaker. The presentation by Davide was very interesting. He showed to us the future of drone. While traditional drone fly by following the path using GPS, future drone will fly using Artificial Intelligence (AI). GPS is no longer needed. This smart drone is pre-trained using deep learning approach. I was very interested to this topic as many drones fail during the flight (mainly because poorly experienced pilot) and there are many people using drones for recreational purpose in my country Indonesia. If this technology could be adopted, I believe the accident caused by the drones will be significantly dropped.

### DroNet: Learning to Fly by Driving

- DroNet learns to follow streets autonomously, without interaction
- The hardest problem in Machine Learning is **data collection**
- **Our idea: learn to fly autonomously by mimicking cars and bicycles!**



Video:  <https://youtu.be/ow7aw9H4BcA>, promptly reacting to them.

Loquercio, DroNet: Learning to Fly by Driving, IEEE RAL'18  
PDF. Featured on [IEEE Spectrum](#), [MIT Technology Review](#),  
and [Discovery Channel Global](#)

Code & Datasets:  
<http://rpg.ifi.uzh.ch/dronet.html>

Slide by Davide Scaramuzza

The other keynote speaks were also very interested. Dr. Andre' Streilein from Swisstopo, Switzerland explained the transformation of National Mapping Agencies (NMA) in a digital era. Since I am working for NMA in Indonesia, obviously, his presentation attracted my attention. The future of NMA should produce map not only in 2D format, but also 3D format as many information has been lost if the map is in 2D format while our world is 3D. In Indonesia, we still produce map in 2.5D. I hope we can move to the fully 3D data.

The oral sessions offer various topics in photogrammetry. As my study focus on Machine Learning / Deep Learning, I attended the sessions related to that. One of them is "ROOFN3D: DEEP LEARNING TRAINING DATA FOR 3D BUILDING RECONSTRUCTION" by Andreas Weichmann. It is very important for supervised classifiers to have a reliable training data in order to perform the task successfully.

My oral presentation was on 6 June 2018. It was my honor to give an oral presentation in ISPRS symposium. In the discussion, three participants discussed with me. The discussion was very useful for me to improve my method in the future.



Me presenting my paper

Other activities in the symposium were also exciting. Social dinner offered an opportunity for the participants to expand the networking. Riva del Garda also offers outdoor activities such as hill hiking.

Overall, the symposium was very great and well organized. Travel grant from TIF was very helpful for me (and other participants I believe) to attend the symposium. Thank you TIF !!