Nicolai Häni | Curriculum Vitae

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Education

University of Minnesota — **Minneapolis, MN, USA**
Ph.D. Candidate in Computer Science — *2017–*
Advisor: Prof. Volkan Isler

Zurich University of Applied Sciences — **Zurich, Switzerland**
Master of Science in Engineering — *2013–2015*

Zurich University of Applied Sciences — **Zurich, Switzerland**
Bachelor of Science in System Engineering — *2009–2012*

Research Interests

- Computer vision, machine learning, robotics.

Selected Publications

- **N. Häni**, P. Roy, V. Isler. Semantics-Aware Image to Image Translation and Domain Transfer. *Submitted to Robotics and Automation Letter (RA-L)*, 2019
- **N. Häni**, P. Roy, V. Isler. MinneApple: A Benchmark Dataset for Apple Detection and Segmentation. *Submitted to Robotics and Automation Letter (RA-L)*, 2019
- **N. Häni**, P. Roy, V. Isler. A Comparative Study of Fruit Detection and Counting Methods for Yield Mapping in Apple Orchards. *Journal of Field Robotics (JFR)*, 2019
- **N. Häni**, P. Roy, V. Isler. Apple Counting using Convolutional Neural Networks. *International Conference on Intelligent Robots and Systems (IROS)*, 2018
- C. Becker, **N. Häni**, E. Rosinskaya, E. D'Angelo, C. Strecha. Classification of aerial photogrammetric point clouds. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences (ISPRS)*, 2017
- **N. Häni**, V. Isler. Visual Servoing in Orchard Settings. *International Conference on Intelligent Robots and Systems (IROS)*, 2016

Experience

Robotic Sensor Network Laboratory — **University of Minnesota**
Advisor: Prof. Volkan Isler — *2017–*

Learning Semantically Consistent Domain Transfer.....

- Unsupervised learning of semantics preserving domain transfer from unpaired data
- Better object transfiguration through semantically consistent image to image translation

Precision Agriculture.....

- Using crowed sourced labor to create a new benchmark dataset for fruit detection, segmentation and counting in orchards.
- Comparing supervised and unsupervised learning methods on the task of yield estimation.
- Counting of clustered fruit through deep learning.

Software Engineer, Pix4D **Lausanne, Switzerland**
Advisor: Christoph Strecha *2016–2017*

- Efficient classification of large scale aerial point clouds with boosted trees.
- Detection and segmentation of sky pixels in drone images to remove false features from the 3D reconstruction pipeline.

Institute of Mechatronic Systems **Winterthur, Switzerland**
Advisor: Dejan Seatovic *2013–2015*

- Development of intuitive methods for visualization and haptic feedback to steer a robotic catheter during heart surgery.
- Designed a new calibration method for camera/LIDAR calibration using geometric targets.

Awards

- **ASPRS Talbart Abrams Award** 2019
  for the paper: Classification of aerial photogrammetric 3D point clouds
- **Department of Computer Science Fellowship**, University of Minnesota 2018
- **Best Master Thesis Award**, Swiss Society of Advanced Control 2016

Other Services

- Technical paper reviewer
  - Computers and Electronics in Agriculture 2019
  - Journal of Field Robotics 2019
  - International Conference of Intelligent Robots and Systems (IROS) 2018
  - Robotics and Automation Letter (RA-L) 2018
- Teaching Assistant
  - CSci 2033 Elementary Computational Linear Algebra, University of Minnesota Spring 2018

Computer Skills

- **Programming Languages:** C/C++, MATLAB, Python, HTML, Java
- **Software & Platforms & Libraries:** LaTeX, GitHub, SVN, CUDA, PyTorch, TensorFlow, Eigen, OpenCV, PCL