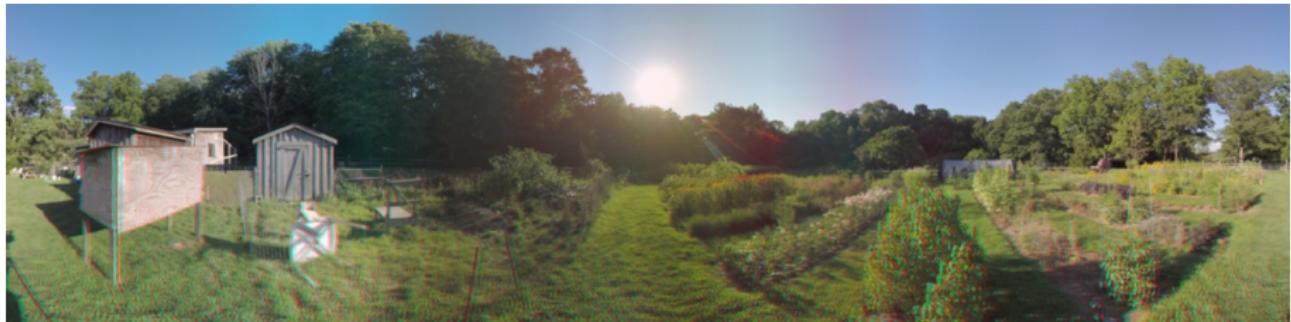


# Omni-directional stereo for 360° 3D virtual reality video

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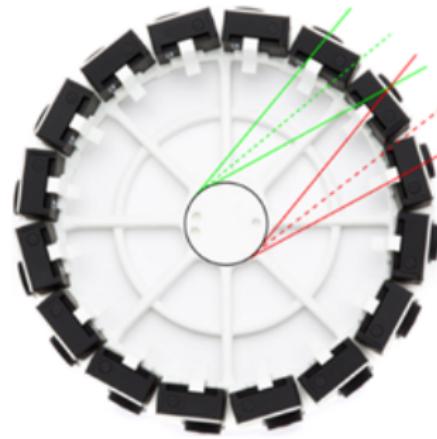
Swiss Federal Institute of Technology

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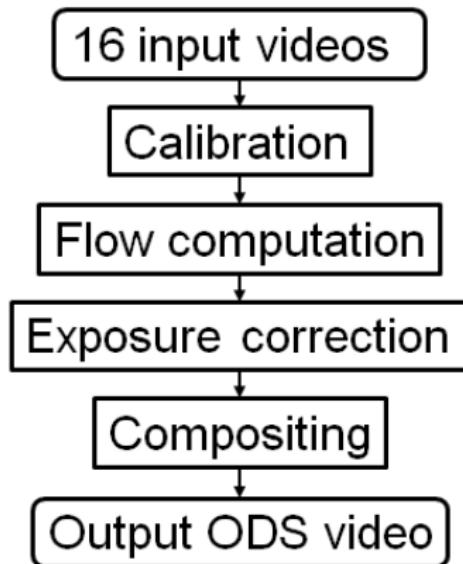
# Recap: motivational paper (Jump, Google)

- Hardware and software framework
- Hardware: virtual reality headset (i.e. Google cardboard), rig of 16 GoPro cameras
- Software: ODS capture (projection on the cylindrical panorama), stitching pipeline
- Output: omni-directional stereo (ODS) videos
- Our goal: achieve visually pleasing videos



# Recap: stitching pipeline

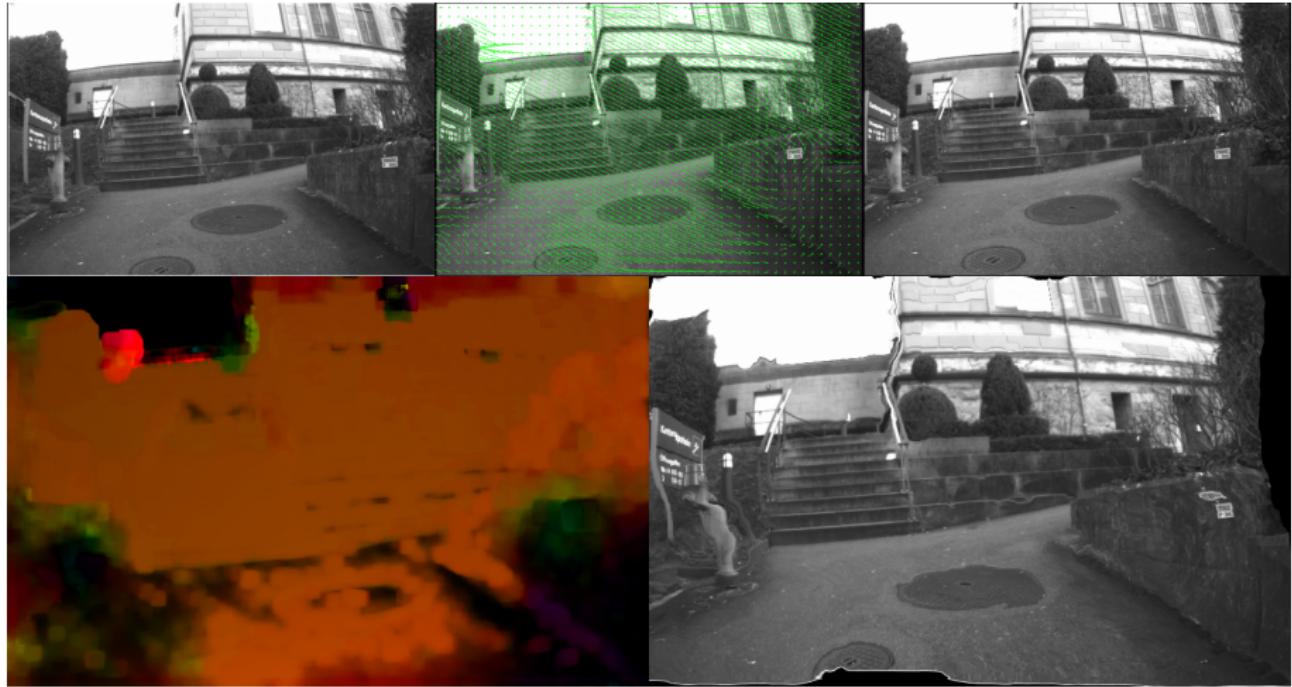
- Camera calibration
  - Standard structure from motion approach
  - Already calibrated dataset
- Flow computation
  - Find per-pixel correspondences of neighbouring cameras (Optical Flow)
  - OpenCV used
- **Exposure correction**
- Compositing
  - Projection into ODS: linear interpolation
  - 3D point cloud for verification
  - Occlusions have to be taken into account



# Demo 1: Optical Flow single camera



## Demo 2: Optical Flow stereo



# Demo 4: 3D point cloud

## Demo 4: Stitching example

# Questions?