

# Gurkirt Singh

gurkirt.singh@vision.ee.ethz.ch  $\diamond$  <http://gurkirt.github.io/>

**Experience**      6+ Years in Academia, 3+ Years in Industry

<b>CVL, ETH</b> , Zurich, CH <i>Postdoctoral Fellow</i>	<i>Feb. 2020 - Present</i>
<b>Perception Team, INRIA</b> , Grenoble, FR <i>Research Intern &amp; Engineer</i>	<i>Feb. 2013 - Sep. 2013</i>
<b>VGL IIT</b> , Delhi, IN <i>Research Assistant</i>	<i>May 2011 - Apr. 2012</i>
<b>SMSS lab, IIT</b> , Kanpur, IN <i>Research Assistant</i>	<i>Jul. 2010 - Mar. 2011</i>
<b>University of Edinburgh</b> , Edinburgh, UK <i>Research Intern</i>	<i>Jan. 2010 - May 2010</i>
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<b>BorealisAI</b> , Vancouver, CA <i>Research Intern</i>	<i>Feb. 2019 - May 2019</i>
<b>Disney Research</b> , Pittsburgh, US <i>Research Intern</i>	<i>Feb. 2017 - Jul. 2017</i>
<b>Siemens Corporate Research</b> , Bangalore, IN <i>Research Engineer</i>	<i>Oct. 2013 - Aug. 2015</i>

## Education

<b>Oxford Brookes University</b> , Oxford, UK <i>PhD in Computer Vision</i>	<i>Sep. 2015 - Nov 2019</i>
<b>ENSIMAG, INP</b> , Grenoble, FR <i>MSc in Informatics</i>	<i>Sep. 2012 - Jun. 2013</i>
<b>VIT University</b> , Vellore, IN <i>B.Tech in Electronics</i>	<i>Aug. 2006 - May 2010</i>

**Selected Publications**      18+ in TPAMI, ICCV, CVPRw, ECCVw, WACV, ACCV, BMVC, ICPR

- G. Singh**, V. Choutas, S. Saha, F. Yu, L.V. Gool, Spatio-Temporal Action Detection Under Large Motion,    *WACV*, 2023
- G. Singh**, S. Akrigg,.....*et al.*, F. Cuzzolin, ROAD: The ROad Event Awareness Dataset for Autonomous Driving,    *TPAMI*, 2023
- G. Singh**, F. Cuzzolin, Recurrent Convolutions for Causal 3D CNNs,    *ICCVW*, 2019
- G. Singh**, S. Saha and F. Cuzzolin, Predicting Action Tubes,    *ECCVW*, 2018
- G. Singh**, S. Saha, M. Sapienza, P.H.S. Torr, F. Cuzzolin, Online Real-time Multiple Spatiotemporal Action Localisation,    *ICCV*, 2017
- G. Evangelidis, **G. Singh**, R. Horaud, Skeletal Quads: Human action recognition using joint quadruples,    *ICPR*, 2014

## Selected Awards & Challenges

- Won Multisports-Challenge, DeeperAction ECCV'22.
- Selected in Doctoral Consortium ICCV-2019.
- Best Reviewer award for ICCV-2019.
- Second place, ActivityNet-Challenge 2016, Detection tasks.

## Hands-on Skills      (Years)

- Python(6), Matlab(5), C/C++(3), Lua(1).
- PyTorch(5), Torch(1), Caffe(2), TensorFlow(1), Keras(1).
- Open3D(1), Scikit-Learn(6), OpenCV(10), Eigen(1).
- Wandb(2), Tensorboard(4), Visdom(2), Lightning(1).
- PySlowFast(2), YOLO(2), Detectron(1), MMCV(1).
- iOS APP-Dev(0.5), TorchLite(0.5), TFLite(0.5), ONNX(0.5).
- Unit-testing(0.5), Git(7), SVN(2).
- AWS(2), Colab(1), Slurm(4), Sbatch(2), DGX(2).
- Trained: CNN, RNN, LSTM, GNN, Transformer based models.
- Manged 6+ machines with GPUs for 3 years .

## Mentoring, Teaching, Contributions

- Mentored 8 master (6 months each), 2 PhD (1 year), 3 Undergraduate (3 months) students towards succesfull thesis outcomes.
- Mentored 3 undergraduate interns at Siemens.
- Regularly taught Computer Vision and Machine Learning Lectures for Postgraduates, and held labortory sessions for Understanding Programming (Python) course for undergraduates during PhD years.
- Co-organised workshop with ROAD Challenge in ICCV 2021.
- Workshop and challenge for surgeon action detection, MIDL 2020.
- Regular reviewer for TPAMI, CVPR, ICCV, ECCV, BMVC, IJCIA.
- Multiple open source projects with 700+ stars on GitHub.

## Recent Research Experience

- 3D-reconstruction, depth estimation, point-cloud registration and semantic segmentation of teeth images for ZaaMigo AG.
- 7+ years in human action recognition, detection and video processing.
- Improvised tracking to improve action detection and other projects.
- Implmented object detectors for various research projects..
- 2D/3D human pose estimation in student projects and early research on skeltal action recognition.