

# Gurkirt Singh

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

<b>CVL, ETH</b> , Zurich, CH <i>Postdoctoral Fellow</i>	<i>Feb'20 - Present</i>
<b>Perception, INRIA</b> , Grenoble, FR <i>Research Intern</i>	<i>Feb'13 - Sep'13</i>
<b>VGL IIT</b> , Delhi, IN <i>Research Assistant</i>	<i>May'11 - Apr'12</i>
<b>SMSS lab, IIT</b> , Kanpur, IN <i>Research Assistant</i>	<i>Jul'10 - Mar'11</i>
<b>University of Edinburgh</b> , , UK <i>Research Intern</i>	<i>Jan'10 - May'10</i>
<b>BorealisAI</b> , Vancouver, CA <i>Research Intern</i>	<i>Feb'19 - May'19</i>
<b>Disney Research</b> , Pittsburgh, US <i>Research Intern</i>	<i>Feb'17 - Jul'17</i>
<b>Siemens Research</b> , Bangalore, IN <i>Research Engineer</i>	<i>Oct'13 - Aug'15</i>

## Education

<b>Oxford Brookes University</b> , UK <i>PhD in Computer Vision</i>	<i>Sep'15 - Nov'19</i>
<b>ENSIMAG, INP</b> , Grenoble, FR <i>MSc in Informatics</i>	<i>Sep'12 - Jun'13</i>
<b>VIT University</b> , Vellore, IN <i>B.Tech in Electronics</i>	<i>Aug'06 - May'10</i>

## Mentoring, Teaching, Contributions

Mentored 8 master (6 months each), 2 PhD (1 year), 3 Undergraduate (3 months) students towards successful thesis outcomes.

Mentored 3 undergraduate interns at Siemens.

Computer Vision and Machine Learning Lectures for Postgraduates, and hands-on for Understanding Programming course for undergraduates during PhD years.

Co-organised workshops and challenges in ROAD dataset at ICCV 2021, and ESAD dataset on surgeon action detection at MIDL 2020.

Regular reviewer for TPAMI, CVPR, ICCV, ECCV, BMVC, IJCA.

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 for SironaAI.

## Selected Awards & Challenges

Won Multisports-Challenge, DeeperAction ECCV'22.

Selected in Doctoral Consortium ICCV-2019.

Best Reviewer award for ICCV-2019.

150th Anniversary PhD Scholarship, Oxford Brookes University.

Second to DeepMind on Charades-Challenge CVPR-2017.

Second place, ActivityNet-Challenge CVPR-2016.

## 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), MNCV(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 .

## 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**, *et al.*, and 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**, *et al.*, and 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