Gurkirt Singh

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About Me: I have 10+ years experience in computer vision across 6 countries. I enjoy working on Vision+lanuage, 3D-reconstruction, object detection, semantic segmentation, human pose estimation, and action detection.

EXPERIENCE   Academia: 6+ years, Industry 3+ years

Xovis AG, Bern, CH, *ML & CV Engineer*   *Oct 23 - Present*
Responsible for design and development of object detection and tracking models, which are deployed on more than 500K embedded devices.

ETH, Zurich, CH, *Postdoctoral Fellow*   *Feb 20, 3.5 years*
Responsible for research support for startups on 3D reconstruction, 3D human pose estimation, and MRI classification.

BorealisAI, Vancouver, CA, *Research Intern*   *Feb 19, 4 months*
Developed human-object relation detection algorithm for videos.

Disney Research, Pittsburgh, US, *Research Intern*   *Feb 17, 6 months*
Action-detection method for ABC's tv-episode meta-data generation.

Siemens Research, Banglore, IN, *Research Engineer*   *Oct 13, 2 years*
Support research team with implementation of CV Algorithms.

INRIA, Grenoble, FR, *Research Intern*   *Feb 13, 8 months*
Researched on gesture recognition method for RGB-D cameras.

University of Edinburgh, UK, *Research Intern*   *Jan 10, 4 months*
Worked on anomalous trajectory detection with GMMs.

EDUCATION

Oxford Brookes University, UK *PhD Computer Vision*   *Sep 15, 4 years*
ENSIMAG, INP, Grenoble, FR *MSc Informatics*   *Sep 12 - 1.2 years*
VIT University, Vellore, IN *B.Tech Electronics*   *Aug 06 - 4 years*

MENTORING, TEACHING, CONTRIBUTIONS

Mentored 13 students: 2 PhD, 8 master, and 3 undergraduate.

Supervised 3 undergraduate interns at Siemens.

Computer vision and machine learning lectures for postgraduates, 2016-19.

Hands-on session for understanding-programming course, 2016-19.

Co-organised workshops and challenges on ROAD dataset at ICCV 21, and on ESAD dataset on surgeon action detection at MIDL 20.

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

Multple open source projects with 700+ stars and 150+ forks on GitHub.

SELECTED INT. AWARDS

ECCV 22: Won Multisports-challenge.
ICCV 19: Selected in doctoral consortium.
ICCV 19: Best reviewer award.
CVPR 17: Second in Charades-challenge.
CVPR 16: Second in ActivityNet-challenge.

TECHNICAL SKILLS

Programming: Python, Matlab, C/C++.

DeepLearning: PyTorch, Torch, Caffe, TensorFlow, Keras, Lightning, JAX.

Libraries: Open3D, SkLearn, OpenCV, PySLowFast, YOLOv5, Detectron, MMCV.

Mobile-development: TFLite, TorchLite, ONNX.

Slurm, Sbatch, AWS, DGX.

Managed 6+ GPU-machines for 3 years.

REFERENCES

Prof. Luc V. Gool (ETH Zurich)
Prof. Fabio Cuzzolin (Oxford Brookes Uni.)
Prof. Leonid Sigal (UBC Vancouver)
Prof. Philip Torr (Oxford University)
Dr. Georgios Evangelidis (Snap Inc).

SELECTED PUBLICATIONS   18+ in TPAMI, ICCV, CVPRW, ECCVW, WACV, ACCV, BMVC, ICPR

G. Singh, V. Choutas, S. Saha, F. Yu, L.V. Gool, Spatiotemporal action detection under large motion, *WACV*, 23

G. Singh, *et al.*, and F. Cuzzolin, ROAD: the road event awareness dataset for autonomous driving, *TPAMI*, 22

G. Singh, F. Cuzzolin, Recurrent convolutions for causal 3D CNNs, *ICCVW*, 19

G. Singh, S. Saha and F. Cuzzolin, Predicting action tubes, *ECCVW*, 18

G. Singh, *et al.*, and PHS Torr, F. Cuzzolin, Online realtime multiple spatiotemporal action localisation, *ICCV*, 17

G. Evangelidis, **G. Singh**, R. Horaud, Skeletal quads: human action recognition using joint quadruples, *ICPR*, 14