Gurkirt Singh

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About Me: 9+ years experience in computer vision across 6 countries. I am proficent in both classical and deep learning methods. I enjoy working on 3D-reconstruction, action recognition & detection, human pose estimation, object detection, and semantic segmentation.

Experience

Academia: 6+ years, Industry 3+ years

ETH, Zurich, CH *Postdoctoral Fellow*	*Feb'20 - Present*
BorealisAI, Vancouver, CA *Research Intern*	*Feb'19 - May'19*
Disney Research, Pittsburgh, US *Research Intern*	*Feb'17 - Jul'17*
Siemens Research, Banglore, IN *Research Engineer*	*Oct'13 - Aug'15*
INRIA, Grenoble, FR *Research Intern*	*Feb'13 - Sep'13*
IIT, Delhi, IN *Research Assistant*	*May'11 - Apr'12*
IIT, Kanpur, IN *Research Assistant*	*Jul'10 - Mar'11*
University of Edinburgh, UK *Research Intern*	*Jan'10 - May'10*

Education

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

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.

Recent Research Experience

3D-reconstruction: depth estimation, point-cloud registration and semantic segmentation of teeth images for Zaamigo AG.

Video processing: 7+ years in action recognition, detection, and tracking.

2D/3D Human pose-estimation: for SironaAI and student projects.

Selected International Awards

Won Multisports-challenge ECCV'22.

Selected in doctoral consortium ICCV'19.

Best reviewer award for ICCV'19.

Second in Charades-challenge CVPR'17.

Second in ActivityNet-challenge CVPR'16.

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, iOS-APP-Dev.

Other: Unit-testing, Git, SVN.

AWS, Colab, Slurm, Sbatch, DGX.

Managed 6+ GPU-machines for 3 years.

Soft Skills

Problem-solving, Critical-thinking, Collaboration, Leadership, Constructive-feedback, Openness to criticism, Persuasive, Presentation, Public-speaking, Adaptive personality, open to new ideas/ways-of-working.

References

Prof. Luc V. Gool, Prof. Fabio Cuzzolin, Prof Leonid Sigal, Prof. Philip Torr
Dr. Georgios Evangelidis.

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