

Gurkirt Singh

Computer Vision Lab, ETH – Zurich, Switzerland
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Experience Academia: 6+ years, Industry 3+ years

Xovis AG, Bern Machine Learning and Computer Vision Engineer;	<i>Oct. 2023 - now</i>
ETH Zurich Postdoctoral Fellow; Advised by Prof. Luc Van Gool	<i>Feb. 2020 - Oct. 2023</i>
Borealis AI, Canada Research Intern; Advised by Prof. Greg Mori & Prof. Leonid Sigal	<i>Feb. 2019 - May 2019</i>
Disney Research, USA R&D Lab Associate (Research Intern); Advised by Prof. Leonid Sigal & Dr. Andreas Lehrmann	<i>Feb. 2017 - Jul. 2017</i>
Siemens Corporate Research, India Research Engineer	<i>Oct. 2013 - Aug. 2015</i>
INRIA, France Research Intern & Engineer; Advised by Prof. Radu Horaud & Dr. Georgios Evangelidis	<i>Feb. 2013 - Sept. 2013</i>
Vision and Graphics lab IIT Delhi, India Project Associate; Advised by Dr. Subhashis Banerjee	<i>May. 2011 - Apr. 2012</i>
SMSS lab, IIT Kanpur, India Project Associate; Advised by Dr. Bishakh Bhattacharya	<i>Jul. 2010 - Mar. 2011</i>
University of Edinburgh, UK Research Intern; Advised by Prof. Bob Fisher	<i>Jan. 2010 - May 2010</i>

Education

Oxford Brookes University Ph.D. Student; Supervised by Prof. Fabio Cuzzolin	<i>Sept. 2015 - Nov 2019</i>
Institut Polytechnique de Grenoble, France MSc in Informatics at ENSIMAG; Advised by Prof. Radu Horaud & Dr. Georgios Evangelidis	<i>Sep. 2012 - Jun. 2013</i>
VIT University, Vellore, India B.Tech; Advised by Prf. Bob Fisher & Prof. Arulmozhivarman Pachiyappan	<i>Aug. 2006 - May 2010</i>

Research Interests

Human Detection and Tracking	Spatiotemporal Action Detection
3D Human Pose-estimation	Monocular Depth Estimation

Selected Publications 18+ in TPAMI, ICCV, CVPRW, ECCVW, WACV, ACCV, BMVC, ICPR

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- Gurkirt Singh**, Vasileios Choutas, Suman Saha, Fisher Yu, Luc Van Gool, **Spatio-Temporal Action Detection Under Large Motion**, *IEEE/CVF Winter Conference on Applications of computer Vision (WACV)*, 2023
- Gurkirt Singh**, Stephen Akrigg, Manuele Di Maio, others &, Fabio Cuzzolin, **ROAD: The ROad Event Awareness Dataset for Autonomous Driving**, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2022
- Vivek Singh Bawa, **Gurkirt Singh**, Francis KapingA, others &, Fabio Cuzzolin, **ESAD: Endoscopic Surgeon Action Detection Dataset**, *Preprint arXiv: 2006.07164*, 2021
- Gurkirt Singh** and Fabio Cuzzolin, **Recurrent Convolutions for Causal 3D CNNs**, *Workshop on Large Scale Holistic Video Understanding, ICCV*, 2019

Silvio Olivastri, **Gurkirt Singh** and Fabio Cuzzolin, **An End-to-End Baseline for Video Captioning**, *Workshop on Large Scale Holistic Video Understanding, ICCV, 2019*

Gurkirt Singh, Suman Saha and Fabio Cuzzolin, **TraMNet - Transition Matrix Network for Efficient Action Tube Proposals**, *Asian Conference on Computer Vision (ACCV), 2018*

Harkirat Behl, Michael Sapienza **Gurkirt Singh**, Suman Saha, Fabio Cuzzolin and Philip Torr, **Incremental Tube Construction for Human Action Detection**, *British Machine Vision Conference (BMVC), 2018*

Gurkirt Singh, Suman Saha and Fabio Cuzzolin, **Predicting Action Tubes**, *Workshop on Anticipating Human Behavior, ECCV 2018*

Gurkirt Singh, Suman Saha, Michael Sapienza, Philip Torr and Fabio Cuzzolin, **Online Real-time Multiple Spatiotemporal Action Localisation and Prediction**, *International Conference on Computer Vision (ICCV), 2017*

AMTnet: Action-Micro-Tube Regression by end-to-end Trainable Deep Architecture, Suman Saha, **Gurkirt Singh** and Fabio Cuzzolin, *International Conference on Computer Vision (ICCV), 2017*

Suman Saha, **Gurkirt Singh**, Michael Sapienza, Philip Torr and Fabio Cuzzolin, **Deep Learning for Detecting Multiple Space-Time Action Tubes in Videos**, *British Machine Vision Conference (BMVC), 2016*

Gurkirt Singh and Fabio Cuzzolin, **Untrimmed Video Classification for Activity Detection: Submission to ActivityNet Challenge**, *ActivityNet Challenge Workshop, CVPR 2016*

Georgios Evangelidis, **Gurkirt Singh**, Radu Horaud, **Skeletal Quads: Human action recognition using joint quadruples**, *International Conference on Pattern Recognition Vision (ICPR), 2014*

Georgios Evangelidis, **Gurkirt Singh**, Radu Horaud, **Continuous Gesture Recognition from Articulated Poses**, *Workshop on Looking at People (Chalearn), ECCV 2014*

Awards & Challenges

Multisports-Challenge, DeeperAction ECCV'22: Winner of Action Detection Track	2022
Doctoral Consortium: Selected for Doctoral Consortium Award ICCV-2019	2019
Best Reviewer: Selected as the best reviewer for ICCV-2019	2019
PhD Scholarship: 150th Anniversary PhD Scholarship, Oxford Brookes University	2015
Charades-Challenge 2017: Action Recognition and Segmentation tasks (Rank: 2/10 and 3/6)	2017
ActivityNet-Challenge 2017: Classification tasks (Rank 3/29)	2017
ActivityNet-Challenge 2016: Classification and Detection tasks (Rank 10/24 and 2/6)	2016
Chalearn-Challenge 2014: Looking at People Challenge (Gesture Detection Task Rank 7/17)	2014

Skills

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

Deep Learning Platforms: PyTorch, Lightning, Torch, Caffe, TensorFlow

Libraries: Numpy, Scipy, Scikit-Learn, OpenCV, Eigen, Kinect SDK, Wandb

Operating Systems: Linux, macOS, Windows

Teaching Experience

Machine Learning: Teaching Assistant (Postgraduate)	2018
Computer Vision and Machine Learning: Guest lecturer (Postgraduate)	2016, 2017, 2018
Understanding Programming: Lab Assistant (Undergraduate)	2015, 2016, 2017

Community Contributions

Co-cognised workshop on The ROAD Challenge ICCV 2023.

Co-cognised workshop on The ROAD Challenge ICCV 2021.

Co-cognised workshop on ESAD challenge for surgeon action detection, MIDL 2020.

Best reviewer award ICCV 2019

Reviewer: TPAMI 2017, 2018, ICCV 2019, 2021, ECCV 2020, 2022 CVPR 2018,2019,2020,2021,2022
BMVC 2018,2019 and IJCI 2017, 2018, 2019

Languages

Punjabi (Maternal), Hindi (Fluent), English (Fluent), French (Elementary), German (Elementary)

References

Professor Luc Van Gool, ETH Zurich, Switzerland.

Professor Fabio Cuzzolin, Oxford Brookes University, UK.

Professor Leonid Sigal, University of British Columbia, Canada.

Professor Philip Torr, University of Oxford, UK.

Dr. Georgios Evangelidis; Snap, Vienna, Austria.

Dr. Andreas Lehrmann, BorealisAI, Vancouver, Canada.

Professor Bob Fisher, University of Edinburgh, UK.

Dr. Amit Kale, Bosch Research, India.

More Information

Google Scholar: <https://scholar.google.com/citations?user=w8XHUMIAAAAJ&hl=en>

Homepage: <http://gurkirt.github.io/>

Github: <https://github.com/gurkirt>

LinkedIn: <https://www.linkedin.com/in/gurkirt/>