Gurkirt Singh

Web: http://gurkirt.github.io/, **Email:** gurkirt.singh-2015@brookes.ac.uk, **Tel:**+447424653155

INTERESTS Computer Vision and Machine learning

EDUCATION

PhD in Computing and Maths Sept'15 - present
Artificial Intelligence and Vision research group, Oxford Brookes University
Proposed thesis direction: *Action predication in streaming videos.*
Supervisors: Professor Fabio Cuzzolin

Research Master, Specialization: *Graphics Vision and Robotics* 2012 - 2013
ENSIMAG - Grenoble INP, France
Grades: 13.74/20.00 Max Grades in class: 16.12/20.00
Thesis: *Frame-wise representations of depth videos for action recognition.* Supervisors: Professor. Radu Horaud and Dr. Georgios Evangelidis

B.Tech. in **Electronics and Instrumentation Engineering.** 2006 - 2010
VIT University, Vellore, India; CGPA: 8.33/10.00
Thesis: *Categorising the Abnormal Behaviour from an Indoor Overhead Camera.*
Supervisor: Professor Bob Fisher from University of Edinburgh, UK

CONTESTS

Charades-2017: Acton Recognition and Segmentation tasks (Rank: **2**/10 and 3/6) 2016
ActivityNet-2017: Classification tasks (Rank 3/29) 2016
ActivityNet-2016: Classification and Detection tasks (Rank 10/24 and **2**/6) 2016
Chalearn Looking at People Challenge (Gesture Detection Task Rank 7/17) 2014
Chalearn Multi-Modal Gesture Recognition Challenge (Rank 17/54) 2013

EXPERIENCE

Disney Research Pittsburgh, USA Feb'17 - July'17
Research Intern, Computer Vision
Temporal Activity Detection in untrimmed videos of TV-episodes.
Supervisors: Leonid Sigal and Andreas Lehrmann

Siemens Corporate Research and Technology, India Oct'13 - Aug'15
Research Engineer, Imaging and Computer Vision group
Multiple Object detection and tracking for video surveillance applications
Collaborator: Siemens Corporate Research, Princeton, USA

Perception team, INRIA Grenoble, France
Research Engineer: *Multi-modal gesture recognition.* June'13 - Sept'13
Master thesis:*Frame-wise representations of depth videos.* Jan'13 - May'13
Supervisors: Dr. Radu Horaud and Dr. Georgios Evangelidis

Vision and Graphics lab IIT Delhi, India May'11 - March'12
Project Associate, *Implementation of Interactive Single View Image Based Model Reconstruction.* AND. *Moving object detection with moving camera.*
Supervisors: Dr. Subhashis Banerjee

SMSS lab, IIT Kanpur, India June'10 - March'11
Project Associate, *Control of Reconfigurable Parabolic Antenna using SMA actuators.*
Supervisors: Dr. Bishakh Bhattacharya

University of Edinburgh, UK Jan'10 - May'10
Intern at Institute of Perception, Action and Behaviour
Title: *Categorising the Abnormal Behaviour from an Indoor Overhead Camera.*
Supervisor: Dr. Bob Fisher

PUBLICATIONS

Gurkirt Singh, Suman Saha, Michael Sapienza, Philip Torr and Fabio Cuzzolin, *Online Real-time Multiple Spatiotemporal Action Localisation and Prediction*, ICCV, 2017. **2** citations.

Suman Saha, **Gurkirt Singh** and Fabio Cuzzolin, *AMTnet: Action-Micro-Tube Regression by end-to-end Trainable Deep Architecture*, ICCV, 2017.

Harkirat Behl, Michael Sapienza **Gurkirt Singh**, Suman Saha, Fabio Cuzzolin and Philip Torr, *Incremental Tube Construction for Human Action Detection*, arXiv, 2017.

Suman Saha, **Gurkirt Singh**, Michael Sapienza, Philip Torr and Fabio Cuzzolin, *Spatio-temporal human action localisation and instance segmentation in temporally untrimmed videos*, arXiv, 2017.

Suman Saha, **Gurkirt Singh**, Michael Sapienza, Philip Torr and Fabio Cuzzolin, *Deep Learning for Detecting Multiple Space-Time Action Tubes in Videos*, in BMVC 2016. **22** citations.

Gurkirt Singh and Fabio Cuzzolin, *Untrimmed Video Classification for Activity Detection: Submission to ActivityNet Challenge*, arXiv 2016, **2nd** position in Activity Detection challenge at ActivityNet workshop CVPR 2016. **10** citations.

Georgios Evangelidis, **Gurkirt Singh**, Radu Horaud, *Continuous Gesture Recognition from Articulated Poses*, in ChalearnLAP2014 workshop at ECCV 2014. **27** citations.

Georgios Evangelidis, **Gurkirt Singh**, Radu Horaud, *Skeletal Quads: Human action recognition using joint quadruples*, in ICPR 2014 Stockholm. **79** citations.

THESIS

Master's thesis, *Frame-wise Representations of Depth Videos for Action Recognition.* We investigate the of problem continuous action recognition from depth images. Three types of depth frame data representation are proposed. Further, we investigate the frame-wise classification as a solution for the continuous action detection problem.

Bachelor's thesis *Categorising the Abnormal Behaviour from an Indoor Overhead Camera.* We propose an approach of using an overhead camera to detect the anomalous events based on the trajectories of moving objects with and EER (Equal Error rate) of only 1.2%. I contributed 65000 trajectories to *Edinburgh Informatics Forum Pedestrian Database*.

SKILLS

Programming: Python, Matlab, C/C++, Lua.
Depp Learning Platforms: Torch, PyTorch, Theano, Caffe.
Libraries: OpenCV, Eigen, Scikit-Learn, Numpy, Scipy, Kinect SDK, OpenNI.
Operating Systems: Linux and Windows.
Development Environments: Visual Studio, Eclipse, GCC, Spyder.

MISC

Attended International Computer Vision Summer school, Sicili, 2016, was part of winning reading group.