Ahmad Humayun

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Awards & Achievements

Microsoft Research Project Prize for best MSc. Computer Graphics, Vision and Imaging thesis at UCL (2010).

BBC Best Overall Student Prize in MSc. Computer Graphics, Vision and Imaging at UCL (2010).

Software Design Finalist for **Microsoft Imagine Cup 2007 Korea**. The project on Automated Video Recording of Lectures (AVRiL) was selected to represent Pakistan for the first time in this prestigious invitational.

Education

Georgia Institute of Technology - Ph.D. CS, School of Interactive Computing — Aug. '11 - April '18

University College London (UCL) - MSc. CG, Vision and Imaging - *Distinction* — Sept. '09 - Sept. '10

Lahore University of Management Sciences (LUMS) - BSc. Computer Eng. - *High Merit* — Aug. '03 - July '07

Professional Experience

Georgia Institute of Technology *Graduate Research Assistant*, Computational Perception Lab. — Aug. '11 - April '18

Facebook AI Research, Menlo Park *Research Intern* with Manohar Paluri and Piotr Dollár — May '15 - July '15

Microsoft Research, Redmond *Research Intern*, Multimedia, Interaction, & Communication group — May '14 - July '14

The University of Warwick *Research Associate*, Dept. of Computer Science — Sept. '10 - Dec. '10

Lahore University of Management Sciences *Research Associate*, Dept. of Computer Science — Jan. '07 - July '09

Selected Publications

The Middle Child Problem: Revisiting Parametric Min-cut and Seeds for Object Proposals . *ICCV* - Dec. '15. rehg.org/poise

RIGOR: Recycling Inference in Graph Cuts for generating Object Regions. *CVPR* - June '14. tinyurl.com/ll6oocq

Video Segmentation by Tracking Many Figure-Ground Segments. *ICCV* - Dec. '13. tinyurl.com/opl4rjs

Learning a Confidence Measure for Optical Flow. *IEEE PAMI* - May '13. tinyurl.com/pw76l9g

RAMTaB: Robust Alignment of Multi-Tag Bioimages. *PLoS ONE* - Feb. '12. tinyurl.com/otm3gly

Learning to Find Occlusion Regions. *CVPR* - June '11. visual.cs.ucl.ac.uk/pubs/learningOcclusion/

Myosin Motors Drive Long Range Alignment of Actin Filaments. *J. of Bio. Chemistry* - Feb. '10. tinyurl.com/p52xt48

Research Projects

Video Object Detection at Georgia Institute of Technology (*Ph.D. thesis*)
Currently researching on combining motion and appearance cues for localization in video. The goal is to develop deep architectures for generating proposals amenable for detecting and tracking objects. Tools: Lua Torch, Python, C++

Incremental Learning Inspired by Developmental Psychology at Georgia Institute of Technology (*Ph.D. thesis*)
Introduced an incremental learning paradigm where the learner sees a streaming set of concepts without any labeling. This is supported by a novel data-generator which can produce any number of synthetic videos of objects. Tools: PyTorch

Optimization for Object Segmentation at Georgia Institute of Technology (as *Ph.D. student*)
Research on combinatoric optimization techniques for object segmentation in videos and images. Tools: Matlab, C++

Video Supervision for Generating Video Proposals at Facebook AI Research
Video proposals by unsupervised discovery of objects in large scale video datasets. Tools: Matlab, Python, C++,

Crowd Tracking with Multiple Depth Sensors at Microsoft Research
Developed a large area, crowd tracking system by fusing data from multiple depth sensors. Tools: Kinect SDK, C++

Detecting Occluded Regions at UCL (*MSc. thesis*)
Worked on a supervised learning method to detect regions of occlusion in a two frame sequence. Tools: Matlab

Tracking Techniques using Object's Shape Cues at LUMS
Tracking for accurate trajectory generation using non-rigid shape descriptors. (ahumayun.com/crspd) Tools: Matlab

Molecular Pattern Analysis of Cancerous Colon Cells at The University of Warwick
Detection of cancerous tissue by non-linear embedding of multidimensional microscopy images. Tools: Matlab

Automated Video Recording of Lectures - AVRiL at LUMS (*senior year project*)
Developed an automated *director* that captures a multi-camera lecture environment. (avril.sproj.com) Tools: OpenCV

Skills & Interests

Proficient in Python, Lua, C++, Matlab, Torch, OpenCV | Rock climbing, solving puzzles, and cycling.