

# Noureldien Hussein

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## Summary

PhD in computer vision from the University of Amsterdam. Experienced in video and image understanding. Industrial internships at Microsoft and Qualcomm. I can help your team solve the toughest problems using computer vision.

## Education

- 2016 - 2020 **PhD Computer Vision** - University of Amsterdam - Netherlands  
Action Recognition • Temporal Modeling • Video Description • Generative Models • Face Manipulation  
Graph Representation • Multi-modal Learning • Efficient Networks • Zero-shot Learning • Self-supervision  
Advisors: Arnold Smeulders, Efstratios Gavves
- 2014 - 2015 **MSc Artificial Intelligence** - University of Southampton - UK  
Computer Vision • Machine Learning • Intelligent Agents • Computational Finance  
Thesis: End-to-end Hierarchical CNN for Large-Scale Traffic Sign Detection and Recognition
- 2005 - 2012 **BSc Computer and System Engineering** - Ain Shams University - Egypt  
Software Engineering • Neural Networks • Operating Systems • Computer Networks  
Data Structures and Algorithms • Computer Security • Computer Architecture  
Thesis: Arabic Sign Language Recognition in Real Time (Distinction, Award-winning)

## Professional Experience

- 02 - 07.2020 **Research Intern, Computer Vision** - Microsoft - USA  
Conduct research on understanding facial expressions in video streams  
Expected outcomes: scientific publication and tangible product prototype
- 2016 - 2020 **Graduate Research Assistant** - University of Amsterdam - Netherlands  
Conduct world-class research published in top conferences and journals  
Co-supervise MSc/BSc thesis projects, and assist in teaching BSc subjects  
Reviewer for conferences and journals: CVPR, ICCV, ECCV, TPAMI, IEEE-ToM, ACM-MM  
Helped in organizing academic conferences: ECCV16, ACM-MM16, ICCV HVU
- 06 - 10.2019 **Research Intern, Computer Vision** - Qualcomm - Netherlands  
Research on efficient recognition of long-range actions in videos  
Outcome is concluded and is under submission
- 05.13 - 05.14 **Software Developer** - Breeze IT - UK  
Designed/developed web and mobile solutions using C#, ASP.Net, MVC, Xamarin  
Developed educational, augmented reality app for iPad using C#, Unity3D
- 11.12 - 04.13 **Software Development Engineer** - ITWorx - Egypt  
Saved 60% of server monitoring time by developing automated-monitoring tool  
Proof of concept and investigation for integrating different technologies

## Publications

### Conferences and Workshops

- 2020 Self-Selective Context for Interaction Recognition - *ICPR*  
M. Kilickaya, [N. Hussein](#), E. Gavves and A.W.M. Smeulders
- 2019 VideoGraph: Recognizing Minutes-Long Human Activities in Videos - *ICCV Workshop*  
[N. Hussein](#), E. Gavves and A.W.M. Smeulders
- 2019 Timeception for Complex Action Recognition - *CVPR* - [Oral Presentation](#)  
[N. Hussein](#), E. Gavves and A.W.M. Smeulders
- 2017 Unified Embedding and Metric Learning for Zero-Exemplar Event Detection - *CVPR*  
[N. Hussein](#), E. Gavves and A.W.M. Smeulders
- 2016 Searching Videos, Detecting Events and Describing Videos - *TRECVID Workshop*  
C. Snoek, J. Dong, X. Li, X. Wang, Q. Wei, W. Lan E. Gavves, [N. Hussein](#), D.C. Koelma and A. Smeulders
- Under Review**
- 2020 Conditional Gating of Segments in Long-range Activities  
[N. Hussein](#), M. Jain, B.E. Bejnordi
- 2020 Permutation Invariant Convolution for Recognizing Long-range Activities  
[N. Hussein](#), E. Gavves and A.W.M. Smeulders

## Teaching Experience

### Thesis Supervision

- 2019 Temporal Localization of Actions in Untrimmed Videos, Juan Buhagiar - *MSc AI*
- 2018 Improving Word Embeddings for Zero-Shot Event Localisation, Joop Pascha - *MSc AI*
- 2017 Real-Time Composing of Restaurant Label Classifiers Using Word Similarity, Tony Nguyen - *BSc AI*

### Teaching Assistance

- 2018 Autonomous Mobile Robots - BSc Artificial Intelligence
- 2017 Information Visualization - BSc Computer Science
- 2016 Autonomous Mobile Robots - BSc Computer Science, BSc Artificial Intelligence

## Invited Talks

- 01.2021 Timeception for Complex Action Recognition – GDR-ISIS (Online, Covid-19)
- 03.2020 Trends in Recognizing Complex Human Activities in Videos – University of Central Florida (Online, Covid-19)
- 01.2020 Permutation Invariant Convolution for Recognizing Long-range Activities – Qualcomm AI Research
- 10.2019 VideoEpitoma: Efficient Recognition of Long-range Actions – Qualcomm AI Research
- 10.2019 Recent Advances in Understanding Long-range and Complex Actions – University of Amsterdam
- 05.2019 VideoGraph: Recognizing Minutes-long Human Activities – Qualcomm AI Research
- 03.2019 Trends in Action Recognition – Guest Lecturer, University of Amsterdam
- 10.2018 Timeception: Going Deeper with Temporal Convolutions – Qualcomm AI Research
- 03.2018 Decoupled Spatio-Temporal Convolutions for Recognizing Actions in Long Videos – Qualcomm AI Research
- 02.2017 Unified Embedding and Metric Learning for Zero-exemplar Event Detection – Qualcomm AI Research
- 04.2016 The Story of This: Object-Instance Driven Video Description – Qualcomm AI Research
- 12.2012 The Road to Start-up Your Idea – Social Innovation Summit, US
- 10.2012 Winning the First Place in Microsoft Imagine Cup – Microsoft Middle East Annual Meeting, Turkey

## Patents

- 2020 Permutation Invariant Convolution (PIC) For Recognizing Long-range Activities, Qualcomm Ref. 200247GR1
- 2020 Context-driven Learning of Human-object Interactions, Qualcomm Ref. 200249GR1
- 2020 Recognizing Minutes-Long Human Activities in Videos, US20200302185A1
- 2017 Unified Embedding and Metric Learning for Zero-Exemplar Event Detection, US20180137360A1

## Grants

- 2012 \$50k angel funding from Microsoft to start-up our health-care platform HealthBuzz - USA

## Awards

- 2016 3<sup>rd</sup> place in TRECVID Multimedia Event Detection (MED) Challenge - Online
- 2015 1<sup>st</sup> place in Kaggle in-class competition for recommender systems - Online
- 2012 3<sup>rd</sup> place in Microsoft Imagine Cup Grant competition - USA
- 2012 1<sup>st</sup> place worldwide, Windows Phone Challenge, Microsoft Imagine Cup, \$8k prize - Australia
- 2010 1<sup>st</sup> place in Software Design, Imagine Cup Egypt, competed in the world finals - Poland

## Technical Skills

**Platforms** (*proficient*): PyTorch, TensorFlow, Keras, Caffe2, (*familiar*): Gensim, NLTK, MXNet, CNTK

**Scientific** (*proficient*): OpenCV, Scikit-Image, Pillow, PyLearn, Scikit-Learn, SciPy, Pandas, Numpy

**Languages** (*proficient*): Python, C#, Matlab, HTML/CSS, JavaScript, (*familiar*): Java, SQL, C/C++

**Coding** object-oriented, web, mobile, database, algorithms, data structures, version control

## Languages

**English** Full professional proficiency, TOEFL: 109/120, 07.2015

**Arabic** Native

Last update: 09 Dec 2020