# Epameinondas Antonakos

*Curriculum Vitae*

*Imperial College London*
*Department of Computing*
*180 Queen's Gate*
*SW7 2AZ London UK*
*+44 7544464925*
*e.antonakos@imperial.ac.uk*
*http://nontas.github.io/*

## Research Interests

theory Probabilistic Deformable Models, Statistical Machine Learning/Pattern Recognition, Computer Vision, Detection and Estimation Theory

applications Generic Landmark Localisation, Object Alignment and Tracking, Facial Modeling, Human-Robot Interaction, Facial Expression Recognition, Sign Language Recognition

## Education

2013–2017 **Imperial College London, UK**
**Ph.D. in Computing**, *(expected)*.
*Topic:* Unsupervised Construction of Deformable Models In-The-Wild
*Description:* Research on Probabilistic Deformable Models for detection and tracking of objects under unconstrained conditions, with special focus on development of powerful generative models and methodologies for their unsupervised training.
*Advisor:* Dr. Stefanos Zafeiriou

2004–2011 **National Technical University of Athens, Greece**
**Diploma/M.Eng. in Electrical and Computer Engineering**.
*Course flows:* (i) Signals, Automatic Control and Robotics, (ii) Computer Software, (iii) Computational Systems, (iv) Electronics, Circuits and Materials
*Diploma thesis:* Visual Modeling of Human Face in Real-Time with Applications in Recognition
*Advisor:* Prof. Petros Maragos
*Grades*: G.P.A.: 7.46/10, Thesis: 10/10

## Research Experience

Oct 2012–present **Imperial College London, UK**
**Graduate Research Assistant**.
*Group:* Intelligent Behaviour Understanding Group (iBUG)
*Project:* 4D-FAB: Automatic analysis of facial behaviour in 4D (EPSRC)
*Collection of the largest 3D facial database for facial expression recognition and development of techniques for automatic deformable alignment of 3D sequences and construction of bespoke deformable models.*
*Project:* TeSLA: An Adaptive Trust-based e-assesment System for Learning (EU)
*Development of state-of-the-art face detection, deformable tracking and face verification for an e-assesment platform. Responsible for project meetings and deliverables.*

Sep 2011–Sep 2012 **National Technical University of Athens, Greece**
**Graduate Research Assistant**.
*Group:* Computer Vision, Speech Communication & Signal Processing Group (CVSP)
*Project:* Dicta-Sign: Sign Language Recognition, Generation and Modeling with Application in Deaf Communication (EU)
*Research on the unsupervised classification of facial events and their incorporation in low-level and high-level sign language linguistic phenomena recognition.*

## Publications

### Refereed Journal Articles

2016 G. Chrysos, E. Antonakos, P. Snape, A. Asthana, and S. Zafeiriou. A Comprehensive Performance Evaluation of Deformable Face Tracking "In-the-Wild". *arXiv preprint arXiv:1603.06015*, 2016.

2016 C. Sagonas, E. Antonakos, G. Tzimiropoulos, S. Zafeiriou, and M. Pantic. 300 Faces In-The-Wild Challenge: Database and Results. *Image and Vision Computing (IMAVIS), Special Issue on Facial Landmark Localisation "In-The-Wild"* *(impact factor 2014: 2.384)*, 47: pp. 3-18, 2016.

2015 E. Antonakos, J. Alabort-i-Medina, G. Tzimiropoulos, and S. Zafeiriou. Feature-Based Lucas-Kanade and Active Appearance Models, *IEEE Transactions on Image Processing (T-IP)* *(impact factor 2015: 3.625)*, 24(9): pp. 2617-2632, September 2015.

2014 E. Antonakos, V. Pitsikalis, and P. Maragos. Classification of Extreme Facial Events in Sign Language Videos. *EURASIP Journal on Image and Video Processing*, Springer, 2014(14): 2014.

### Top-Tier Conference Presentations

2016 G. Trigeorgis, P. Snape, M. Nicolaou, E. Antonakos, and S. Zafeiriou. Mnemonic Descent Method: A recurrent process applied for end-to-end face alignment. In *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR'16)* *(29.9% acceptance rate)*, Las Vegas, NV, USA, June 2016.

2016 Y. Zhou, E. Antonakos, J. Alabort-i-Medina, A. Roussos, and S. Zafeiriou. Estimating Correspondences of Deformable Objects "In-the-wild". In *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR'16)* *(29.9% acceptance rate)*, Las Vegas, NV, USA, June 2016.

2016 L. Zafeiriou, E. Antonakos, and S. Zafeiriou. Joint Unsupervised Deformable Spatio-Temporal Alignment of Sequences. In *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR'16)* *(29.9% acceptance rate)*, Las Vegas, NV, USA, June 2016.

2015 E. Antonakos, J. Alabort-i-Medina, and S. Zafeiriou. Active Pictorial Structures. In *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR'15)* *(27% acceptance rate)*, Boston, MA, USA, pp. 5435-5444, June 2015.

2014 J. Alabort-i-Medina*, E. Antonakos*, J. Booth*, P. Snape*, and S. Zafeiriou. (* Equal first authorship). Menpo: A Comprehensive Platform for Parametric Image Alignment and Visual Deformable Models. In *ACM International Conference on Multimedia (MM'14)*, Orlando, FL, USA, pp. 679-682, November 2014.

2014 L. Zafeiriou, E. Antonakos, S. Zafeiriou, and M. Pantic. Joint Unsupervised Face Alignment and Behaviour Analysis. In *European Conference on Computer Vision (ECCV'14)* *(25% acceptance rate)*, Zurich, Switzerland, pp. 167-183, September 2014.

2014 E. Antonakos, and S. Zafeiriou. Automatic Construction of Deformable Models In-The-Wild. In *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR'14)* *(28% acceptance rate)*, Columbus, OH, USA, pp. 1813-1820, June 2014.

### Ordinary Conference Presentations

2016 E. Antonakos*, P. Snape*, G. Trigeorgis, and S. Zafeiriou. (* Equal first authorship). Adaptive Cascaded Regression. In *IEEE International Conference on Image Processing (ICIP'16)*, Phoenix, AZ, USA, *Oral*, September 2016.

2015 G. Chrysos, E. Antonakos, S. Zafeiriou, and P. Snape. Offline Deformable Face Tracking in Arbitrary Videos. In *IEEE International Conference on Computer Vision Workshops (ICCVW'15), 300 Videos in the Wild (300-VW): Facial Landmark Tracking in-the-Wild Challenge & Workshop*, Santiago, Chile, December 2015.

2015 E. Antonakos*, A. Roussos*, and S. Zafeiriou*. (* Equal first authorship). A Survey on Mouth Modeling and Analysis for Sign Language Recognition. In *IEEE International Conference and Workshops on Automatic Face and Gesture Recognition (FG'15)*, Ljubljana, Slovenia, pp. 1-7, May 2015.

2014 E. Antonakos, J. Alabort-i-Medina, G. Tzimiropoulos, and S. Zafeiriou. HOG Active Appearance Models. In *IEEE International Conference on Image Processing (ICIP'14) (Received the top 10% papers award.)*, Paris, France, pp. 224-228, October 2014.

2012 E. Antonakos, V. Pitsikalis, I. Rodomagoulakis, and P. Maragos. Unsupervised Classification of Extreme Facial Events using Active Appearance Models Tracking for Sign Language Videos. *IEEE International Conference on Image Processing (ICIP'12)*, Orlando, FL, USA, pp. 1409-1412, October 2012.

### Other Publications

2016 J. Alabort-i-Medina*, E. Antonakos*, J. Booth*, P. Snape*, and S. Zafeiriou. (* Equal first authorship). The Menpo Project. In *ACM SIGMM Records*, 8(2), June 2016. http://records.mlab.no/2016/04/28/the-menpo-project/.

### Thesis

2011 E. Antonakos. *Visual Modeling of Human Face in Real-Time with Applications in Recognition*. Diploma thesis, National Technical University of Athens, School of Electrical and Computer Engineering, July 2011. In greek.

## Software

2013–present **Menpo Project**
Ecosystem of open-source (BSD-licensed) software based on Python that provides a comprehensive end-to-end solution for 2D and 3D deformable modeling. It includes training and fitting code for state-of-the-art deformable models, generic object detection technologies, fancy visualization with interactive widgets, a command line tool for end-to-end face tracking and a web-based tool for annotation of bulk data. The Menpo Project is cross-platform (Linux, OS-X, Windows) and is available in http://www.menpo.org/ and on Github (https://github.com/menpo/).

2012 GUI Matlab toolbox for face detection, tracking and facial events detection. It includes implementations of Active Appearance Models, Viola-Jones face detection and skin color detection methods. Available upon request. Demo videos: [link1], [link2]

## Teaching Experience and Supervision

2013–present **MSc/MEng students co-supervisor**, *Department of Computing, Imperial College London*, UK.
Co-supervisor of the thesis/final project of the following students:

- Michael Arcangeles, MSc 2015-2016
- Naomi Bassett, MEng 2015-2016
- Joseph Garcia Maegli Juan, MSc 2014-2015
- Maheva Juan, MSc 2014-2015
- Yuan Ye, MSc 2013-2014

2015–2016 **Graduate Teaching Assistant**, *Department of Computing, Imperial College London*, UK.
- *Computational Techniques* (undergraduate course): Lab tutoring, help sessions, coursework design, coursework marking.
- *Machine Learning* (postgraduate course): Coursework marking.

2011–2012 **Graduate Teaching Assistant**, *School of Electrical and Computer Engineering, National Technical University of Athens*, Greece.
- *Computer Vision* (postgraduate and undergraduate course): Lab tutoring, help sessions, coursework design, coursework marking.
- *Digital Signal Processing* (undergraduate course): Lab helper, coursework marking.

## Work Experience

Jun 2007–Aug 2007 **Associate Developer Intern**, *Internet Society NGO*, Yerevan, Armenia.
UNIX and C++ applications developer.
IAESTE Student Exchange Programme.

## Awards and Distinctions

2016 Selected in the finalist stage of the Qualcomm Innovation Fellowship Europe 2016.

2015 Selected by Imperial College London as the only Ph.D. candidate to be supported for the Google European Doctoral Fellowship 2015.

2014 10% best paper award in IEEE International Conference on Image Processing 2014.

## Languages

English **Fluent** *Cambridge Proficiency Certificate (CPE, Grade B), IELTS (score: 7.5)*
French **Good command** *DELF, DALF, Sorbonne I and Sorbonne II*
Greek **Native**

## Programming Skills

Github profile: https://github.com/nontas/
languages Python, Matlab, C/C++
libraries ipython, scikit-learn, scipy, git

## Citations

Source: Google Scholar
citations 110
h-index 7

## References

*Available upon request.*