

# Epameinondas Antonakos

## Curriculum Vitae

Imperial College London  
Department of Computing  
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🌐 <http://nontas.github.io/>

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### 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

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### 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

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### 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-assessment System for Learning (EU)

*Development of state-of-the-art face detection, deformable tracking and face verification for an e-assessment 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.*

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## 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)*, 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, 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.

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### 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: [\[link1\]](#), [\[link2\]](#)

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### 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:
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|----------------------------------|-----------|
| ○ 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.

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## Work Experience

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

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## 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.

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## Languages

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

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## Programming Skills

Github profile: <https://github.com/nontas/>

languages Python, Matlab, C/C++

libraries ipython, scikit-learn, scipy, git

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## Citations

Source: Google Scholar

citations 104

h-index 7

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## References

*Available upon request.*