Epameinondas Antonakos

Curriculum Vitae

Amazon Development Center
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http://nontas.github.io/

Research Interests

theory Computer Vision, Machine Learning, Deep Learning, Probabilistic Deformable Models

applications Object Alignment and Tracking, 3D Reconstruction and Pose Estimation, Instance Segmentation, Generic Object Recognition, Facial Modeling

Experience

Feb 2017–present **Amazon, Berlin, Germany**
Applied Scientist.
Team: Computer Vision Team part of the Core Machine Learning (CoreML) Organization

Oct 2012–Jan 2017 **Imperial College London, UK**
Graduate Research Assistant.
Group: Intelligent Behaviour Understanding Group (iBUG)
Projects: 4D-FAB: Automatic analysis of facial behaviour in 4D (EPSRC)
Worked on 2D and 3D bespoke deformable facial models.
TeSLA: An Adaptive Trust-based e-assesment System for Learning (EU)
Development of face deformable tracking and verification for an e-assesment platform.

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 unsupervised classification of facial events for sign language recognition.

Education

2013–2017 **Imperial College London, UK**
Ph.D. in Computing.
Topic: Robust Statistical Deformable Models
Description: 2D and 3D Deformable Models in-the-wild, with focus on the development of powerful generative models and methodologies for their unsupervised training.
Advisor: Dr. Stefanos Zafeiriou
Examiners: Prof. Lourdes Agapito, Dr. Stefan Leutenegger

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

Teaching Experience

2013–2017 **MSc students supervisor**, *Department of Computing, Imperial College London*, UK.

2015–2016 **Teaching Assistant**, *Department of Computing, Imperial College London*, UK.

- *Computational Techniques* (undergraduate course): Lab tutoring, coursework marking.
- *Machine Learning* (postgraduate course): Coursework marking.

2011–2012 **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 and marking.
- *Digital Signal Processing* (undergraduate course): Lab helper, coursework marking.

Software

2013–present **Menpo Project**
Python open-source (BSD-licensed) ecosystem that provides 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, interactive visualization widgets and a web-based tool for annotation of bulk data. The Menpo Project 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]

Awards and Distinctions

2016 Selected to participate in the first Google Computer Vision PhD Summit 2016.

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, C/C++, Matlab

libraries tensorflow, mxnet, scikit-learn, scipy, ipython, git

Citations

Source: Google Scholar

citations 501

h-index 11

Publications

Refereed Journal Articles

2018 G. Chrysos, E. Antonakos, and S. Zafeiriou. IPST: Incremental Pictorial Structures for Model-Free Tracking of Deformable Objects. *IEEE Transactions on Image Processing (T-IP)* *(impact factor 2018: 4.828)*, 27(7): pp. 3529-3540, July 2018.

2017 G. Chrysos, E. Antonakos, P. Snape, A. Asthana, and S. Zafeiriou. A Comprehensive Performance Evaluation of Deformable Face Tracking "In-the-Wild". *International Journal of Computer Vision (IJCV)* *(impact factor 2017: 8.222)*, pp. 1-35, 2017.

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

2017 J. Booth, E. Antonakos, S. Ploumpis, G. Trigeorgis, Y. Panagakis, and S. Zafeiriou. 3D Face Morphable Models "In-the-Wild". In *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR'17)* *(8% acceptance rate)*, Honolulu, HI, USA, *Spotlight*, July 2017.

2017 R. A. Güler, G. Trigeorgis, E. Antonakos, P. Snape, S. Zafeiriou, and I. Kokkinos. DenseReg: Fully Convolutional Dense Shape Regression In-the-Wild. In *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR'17)* *(29% acceptance rate)*, Honolulu, HI, USA, July 2017.

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. (*Joint 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. (*Joint 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*. (*Joint 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. (*Joint first authorship). The Menpo Project. In *ACM SIGMM Records*, 8(2), June 2016. http://records.mlab.no/2016/04/28/the-menpo-project/.

Theses

2017 E. Antonakos. *Robust Statistical Deformable Models*. Ph.D. thesis, Department of Computing, Imperial College London, March 2017.

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.

References

Available upon request.