

# Athina Tzovara

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## Academic positions

- 2017–Present **University of California Berkeley, USA**, *Visiting scholar at Helen Wills Neuroscience Institute and Department of Psychology*, advisor: Prof. Robert T. Knight.
- 2014–2017 **University of Zurich, Switzerland**, *Postdoctoral fellow at Division of Clinical Psychiatry Research and Neuroscience Centre Zurich*, advisor: Prof. Dominik R. Bach.
- 2015–2017 **University College London, UK**, *Honorary research associate at Wellcome Centre for Human Neuroimaging*, advisor: Prof. Gareth R. Barnes.
- 2012–2014 **Vaudois University Hospital Center, Switzerland**, *Postdoctoral researcher at Radiology Department*, advisor: P.D. Dr. Marzia De Lucia.

## Education

- 2009–2012 **Ph.D. in Neuroscience**, *Faculty of Biology and Medicine, University of Lausanne, Switzerland*, advisors: P.D. Dr. Marzia De Lucia, Prof. Micah M. Murray.
- 2003–2009 **Dipl.-Ing. in Electrical and Computer Engineering**, *National Technical University of Athens, Greece*, advisors: Prof. Nikolaos Uzunoglu, Dr. Angelos Amditis.

## Funding

- 2017–2020 **Swiss National Science Foundation**, *Advanced postdoc mobility fellowship 'Neural and computational mechanisms of regularity extraction in the human brain'*.
- 2018 **Organization for Human Brain Mapping**, *Open Science Special Interest Group, Travel award*.
- 2016 **Swiss National Science Foundation**, *International short visit grant 'Neural oscillations during perception of threat in humans'*.
- 2013 **Swiss Society for Neuroscience**, *Travel grant*.
- 2011 **Lemanic Neuroscience Doctoral School**, *Travel grant*.
- 2010 **European COST Action NeuroMath**, *Travel grant*.

## Teaching

- 2018 **Machine learning techniques for neuroscience**, *Invited lecturer at the summer school of Postgraduate International Program in Physics and Electrical Engineering, University of Bremen, Germany*.

- 2017 **Introduction to neuroscience and electroencephalography**, *Lecturer, summer school for women in informatics and engineering, University of Bremen, Germany.*
- 2017 **How does research treat underrepresented minorities?**, *Workshop organizer, Mozilla Festival, London, UK.*
- 2016 **Mind-reading – an Engineer’s Approach to Neuroscience**, *Lecturer, summer school for women in informatics and engineering, University of Bremen, Germany.*
- 2011 and 2013 **Advanced EEG recording and analysis**, *Contribution to Lemanic Neuroscience Doctoral School, Universities of Lausanne and Geneva, Switzerland.*
- 2011 and 2013 **Lab project faculty**, *Mentoring lab rotation projects for PhD students in Network of European Neuroscience Schools (NENS) program.*

## Scholarly activities

- 2018–Present **Postdoc teaching opportunities program**, *board member, University of California, Berkeley, USA.*
- 2017–Present **Publishing initiative committee**, *member, Organization for Human Brain Mapping.*
- 2016–Present **Diversity and gender committee**, *member, Organization for Human Brain Mapping.*
- 2018–Present **Open Leadership**, *mentor for open science projects, Mozilla Foundation.*
- 2018 **Sage Assembly**, *participant, 'Algorithms and the Role of the Individual' Sage Bionetworks, Seattle, USA.*
- 2015–2017 **Seminar Host**, *'Emotion Club', weekly computational neuroscience seminar, Psychiatric Hospital of Zurich, Switzerland.*
- 2012 **Conference organizing committee**, *4th International Conference on Auditory Cortex, Lausanne, Switzerland.*
- 2005–2009 **Local organizing committee**, *Electrical Engineering Student’s European Association, Athens, Greece.*
- 2012–Present **Journal reviewer**, *Neuroimage, Neuropsychologia, Cog, Affect and Behav Neurosc, Scientific Reports, PLOS One, Psychophysiology, Frontiers in Auditory Cognitive Neuroscience, Journal of Neuroscience Methods.*
- 2014 **Grant reviewer**, *Netherlands organization for scientific research, .*

## Selected talks

- 2018 **Implicit discrimination of auditory regularities in the human hippocampus**, *Symposium talk, International Learning and memory conference, Irvine, USA.*  
**How can we make research more open and inclusive?**, *Mozilla Global Sprint, Colombo, Sri Lanka.*
- 2016 **Machine learning techniques for studying auditory processing through electroencephalography**, *Invited talk, Center for Biomedical Engineering Research, University of Bern, Switzerland.*

- 2016 **Implicit discrimination of global auditory sequences**, *Geneva University Hospitals, Geneva, Switzerland.*
- 2014 **Multivariate EEG decoding techniques for studying auditory processing in acute coma**, *Psychiatric hospital of Zurich, Switzerland.*
- 2013 **Single-trial EEG analyses for studying value-based decision-making**, *Breakfast and Science seminar, Lemanic Center for Biomedical Imaging, Lausanne, Switzerland.*
- 2013 **Progression of auditory discrimination based on neural decoding predicts awakening from coma**, *Conference talk, 8th Alpine Brain Imaging Meeting, Champéry, Switzerland.*
- 2012 **Auditory discrimination in early stage comatose patients**, *Centre de Recherche en Neurosciences de Lyon, France.*
- 2012 **The timing of exploratory decision-making revealed by single-trial topographic EEG analyses**, *University of Nottingham, UK.*

### Computer skills

- Programming Python, R, Matlab
- Research software Fieldtrip, SPM, MNE, Psychopy, Cogent, Psychtoolbox
- Developed software **Single Trial Topographic Analysis**: toolbox for multivariate decoding of EEG data; **Test de Réveil**: software for analyzing EEG data of coma patients and implementation of automated outcome prediction algorithms

### Language skills

- English Certificate of Proficiency in English ECPE, University of Michigan. Excellent skills
- French Diplôme de langue et littérature françaises II, Université de Paris, Sorbonne. Excellent skills
- German Basic skills
- Greek Native speaker

### Publications

- 2018 **Tzovara A.**, Korn C.W. Bach D.R. (2018). Human Pavlovian fear conditioning conforms to probabilistic learning, *PLOS Computational Biology*, doi: 10.1371/journal.pcbi.1006243.
- 2017 D.R. Bach, **Tzovara A.**, Vunder J. (2017). Blocking human fear memory with the matrix metalloproteinase inhibitor doxycycline. *Molecular Psychiatry*, 00: 1-6.  
 Khemka S.\*, **Tzovara A.\***, Gerster S., Quednow B.B., Bach D.R. (2017). Modeling startle eyeblink electromyogram to assess fear learning. *Psychophysiology*, doi: 10.1111/psyp.12775, \*equal contribution.

- Castegnetti G., **Tzovara A.**, Staib M., Gerster S., Bach D.R. (2017). Assessing fear learning via conditioned respiratory amplitude responses. *Psychophysiology*, doi: 10.1111/psyp.12778.
- 2016 **Tzovara A.**, Rossetti A.O., Juan E., Suys T., Viceic D., Rusca M., Oddo M., De Lucia M. (2016). Prediction of awakening from hypothermic post anoxic coma based on auditory discrimination. *Annals of Neurology*, 79(5):748-757.
- Korn C.W., Staib M., **Tzovara A.**, Castegnetti G., Bach D.R. (2016). A pupil size response model to assess fear learning. *Psychophysiology*, doi: 10.1111/psyp.12801.
- De Lucia M., **Tzovara A.** (2016). Reply: Replicability and impact of statistics in the detection of neural responses of consciousness. *Brain*, 139(6):e32.
- Juan E., Nguenpnjo Nguissi N.A., **Tzovara A.**, Viceic D., Rusca M., Oddo M., Rossetti A.O., De Lucia M. (2016). Evidence of trace conditioning in comatose patients revealed by the reactivation of EEG responses to alerting sounds. *Neuroimage*, 141:530-41.
- Juan E., De Lucia M., **Tzovara A.**, Beaud V., Oddo M., Clarke S., Rossetti A.O. (2016). Prediction of cognitive outcome based on the progression of auditory discrimination during coma. *Resuscitation*, 106:89-95.
- Castegnetti G., **Tzovara A.**, Staib M., Paulus P.C., Hofer N., Bach D.R. (2016). Modelling fear-conditioned bradycardia in humans. *Psychophysiology*, 53(6):930-939.
- Bach D.R., Gerster S., **Tzovara A.**, Castegnetti G. (2016). A linear model for event-related respiration responses. *J Neurosci Methods*, 270:147-55.
- 2015 **Tzovara A.**, Simonin A., Oddo M., Rossetti A.O., De Lucia M. (2015). Neural detection of complex sound sequences in the absence of consciousness. *Brain*, 138(5):1160-6.
- Chouiter L.\*, **Tzovara A.\***, Dieguez S., Annoni J.M., Magezi D., De Lucia M., Spierer L. (2015). Experience-based auditory predictions modulate brain activity to silence as do real sounds. *J Cogn Neurosci*. 27(10):1968-80. \* equal contribution.
- Tzovara A.**, Simonin A., Oddo M., Rossetti A.O., De Lucia M. (2015). Reply: Neural detection of complex sound sequences or of statistical regularities in the absence of consciousness? *Brain*, 138(12):e396.
- De Lucia M., **Tzovara A.** (2015). Decoding auditory EEG responses in healthy and clinical populations: A comparative study. *J Neurosci Methods*. 30(250):106-13.
- Tzovara A.**, Chavarriaga R. De Lucia M. (2015). Quantifying the time for accurate EEG decoding of single value-based decisions. *J Neurosci Methods*. 30(250):114-25.
- 2014 Rossetti A.O., **Tzovara A.**, Murray M.M., De Lucia M., Oddo M. (2014). Automated auditory mismatch negativity paradigm improves coma prognostication after cardiac arrest and therapeutic hypothermia. *J Clin Neurophysiol*. 31(4):356-61.

- Cossy N.\*, **Tzovara A.\***, Simonin A., Rossetti A., De Lucia M. (2014). Robust discrimination between EEG responses to categories of environmental sounds in early coma. *Front Psychol.* 25(5)155.
- 2013 **Tzovara A.**, Rossetti A.O., Murray M.M., Spierer L., Grivel J., Oddo M., De Lucia M. (2013). Progression of auditory discrimination based on neural decoding predicts awakening from coma. *Brain*, 136(1):81-9.
- 2012 **Tzovara A.**, Murray M.M., Bourdaud N., Chavarriaga R., Del R. Millan J., De Lucia M. (2012). The timing of exploratory decision-making revealed by single-trial topographic EEG analyses. *Neuroimage*, 8;60(4):1959-1969.
- De Lucia M., **Tzovara A.**, Bernasconi F., Spierer L., Murray M.M. (2012). Auditory perceptual decision-making based on semantic categorization of environmental sounds. *Neuroimage*, 15;60(3):1704-15.
- Tzovara A.**, Murray M.M., Plomp G., Herzog M.H., Michel C.M., De Lucia M. (2012). Decoding stimulus-related information from single-trial EEG responses based on voltage topographies. *Pattern Recognition*. 45(6):2109-2122.
- Tzovara A.**, Murray M.M., Michel C.M., De Lucia M. (2012). A Tutorial Review of Electrical Neuroimaging From Group-Average to Single-Trial Event-Related Potentials. *Developmental Neuropsychology*, 15;60(3):518-544
- 2011 Bernasconi F.\*, De Lucia M.\*, **Tzovara A.\***, Manuel A. L., Murray M.M., Spierer L. (2011). Noise in brain activity engenders perception and influences discrimination sensitivity. *J. of Neuroscience*, 31(49):17971-17981 \*equal contribution.

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## Patent

- 2013 De Lucia M., **Tzovara A.** Method for predicting awakening in a comatose patient and computer-implemented method thereof. International patent application: PCT/EP2013/055036, WO2013135722

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## Book chapters

- 2018 Greshake Tzovaras B., **Tzovara A.** (2018). The personal data is political. Springer, in press. Preprint: <https://doi.org/10.7287/peerj.preprints.27079v1>
- 2013 De Lucia M., **Tzovara A.** (2013). Prognostic Use of Cognitive Event-Related Potentials in Acute Consciousness Impairment. Book: *Clinical Neurophysiology in Disorders of Consciousness*. Springer.