Konstantinos Patlatzoglou, Ph.D.

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About

Computer scientist with a background in AI, Neuroscience and Biomedical Engineering. During the past 5+ years, my experience has focused on research and development of machine learning models for neurophysiological signal analysis. Currently, I'm interested in exploring machine learning methods for scientific discovery and clinical applications.

Experience

2017 – 2022 **University of Kent - Machine Learning Researcher**

- Researched and developed deep learning-based EEG models for automated, end-to-end, real-time monitoring of the depth of anesthesia.

- Collaborated with an interdisciplinary team of computer scientists, neuroscientists, and clinicians.

- Published and presented research results in scientific conferences, demonstrating a novel convolutional neural network for EEG analysis that achieved generalized performance across multiple anesthetic paradigms.

Skills: • Python (*Tensorflow*) • EEG Analysis (*MNE*) • Digital Signal Processing • Machine Learning • Deep Learning • Research Methods • Project Management

2017 – 2021 **University of Kent - Teaching Assistant**

- Prepared and taught undergraduate modules in Computer Science through lab supervision and assistance of students in groups of $\sim$ 20 (Part time).

- Marked and provided feedback on student assignments and term projects

Skills: • Teaching • Written and Spoken Communication

Education

2017 – 2022 **Ph.D. in Computer Science** - University of Kent

Thesis title: *Deep Learning for Electrophysiological Investigation and Estimation of Anesthetic-Induced Unconsciousness*.

2015 – 2016 **M.Sc. in Sound and Music Computing** - Universitat Pompeu Fabra
Grade: 8.53/10

Thesis title: *Neural and Music Correlates of Music-Evoked Emotions*.

2010 – 2015 **B.Sc. in Informatics** - Aristotle University of Thessaloniki
Grade: 8.69/10 (First Class Honours)

Thesis title: *A study of causal interactions during music listening based on EEG signals using estimates of nonlinear correlations*.

Areas of Proficiency

- Machine Learning
- Deep Learning
- NeuroInformatics and Computational Neuroscience
- Digital Signal Processing
- Teaching
- Sound and Music Perception and Cognition

Skills

Languages	Greek (*Native*), English (*Proficiency*)
Coding	Python, Java, Matlab, C, SQL
ML Libraries	Scikit-learn, Tensorflow, Keras
Misc.	MS Office, LaTeX, Unix Shell, Git, Slurm

Activities and Interests

- Biomedical Engineering
- Cognitive Science and Psychology
- Music Perception and Cognition
- Evolutionary Biology
- Massive Open Online Courses (MOOCs)
- Music Composition and Production

Teaching

2017 – 2021	Introduction to Object-Oriented Programming
2017 – 2019	Advanced Object-Oriented Programming
2019 – 2021	Data Structures and Algorithms
2019 – 2020	Agile Development and Software Security
2018 – 2020	Computing Theory and Concurrent Programming

Research Publications

1. **Patlatzoglou, K.** (2022). *Deep learning for electrophysiological investigation and estimation of anesthetic-induced unconsciousness* (Doctoral dissertation, University of Kent,). Retrieved from https://kar.kent.ac.uk/97272/

2. **Patlatzoglou, K.**, Chennu, S., Gosseries, O., Bonhomme, V., Wolff, A., & Laureys, S. (2020). Generalized Prediction of Unconsciousness during Propofol Anesthesia using 3D Convolutional Neural Networks. In *2020 42nd annual international conference of the ieee engineering in medicine & biology society (embc)* (Vol. 2020-July, pp. 134–137). doi:10.1109/EMBC44109.2020.9175324

3. **Patlatzoglou, K.**, Chennu, S., Boly, M., Noirhomme, Q., Bonhomme, V., Brichant, J.-F., … Laureys, S. (2018). Deep Neural Networks for Automatic Classification of Anesthetic-Induced Unconsciousness. In *Lecture notes in computer science (including subseries lecture notes in artificial intelligence and lecture notes in bioinformatics)* (Vol. 11309 LNAI, pp. 216–225). doi:10.1007/978-3-030-05587-5_21

Grants and Awards

2017 – 2020	Postgraduate research scholarship grant awarded by the University of Kent

Grants and Awards (continued)

2017 – 2021 Conference and summer school attendance grants awarded by the University of Kent

Conferences and Workshops

Sep 2020 Pattern Recognition in Neuroimaging (PRNI) Summer School, Vienna, Austria

Jul 2020 42nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Montreal, Canada
Invited Talk: *Generalized Prediction of Unconsciousness during Propofol Anesthesia using 3D Convolutional Neural Networks*

May 2020 Brain, Cognition, Emotion and Music (BCEM) Conference, Kent, UK

Nov 2019 Studying Consciousness in the Electrical Brain - Luminous Workshop, Oxford, UK
Poster Presentation: *Classification and Regression Analysis of Anesthetic States using Electroencephalography and Deep Learning*

Jul 2019 3rd International Summer School on Deep Learning, Warshaw, Poland

Jun 2019 1st Interdisciplinary Research on Brain Network Dynamics (Brandy) Summer School, Terzolas, Italy

Dec 2018 11th International Conference on Brain Informatics, Arlington, Texas, US
Invited Talk: *Deep Neural Networks for Automatic Classification of Anesthetic-Induced Unconsciousness*

Sep 2018 Complex Systems Society (CCS) Conference, Thessaloniki, Greece
Invited Talk: *Classification Analysis of Levels of Consciousness under Anesthesia, using Electroencephalography and Deep Learning Techniques*

Sep 2017 International Symposium on Performance Science (ISPS), Reykjavik, Iceland
Poster Presentation: *Neural and Music Correlates of Music-Evoked Emotions*