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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 am interested in further 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 personalized, 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 studies and paradigms.
 - Developed a Python library for deep learning-based EEG decoding using MNE and Tensorflow (GitHub: DL-EEG).
- 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 ~ 20 (Part time).
 - Marked and provided feedback on student assignments and term projects
- Skills:** • Teaching • Written and Spoken Communication
- 2015 – 2016  **Universitat Pompeu Fabra - NeuroInformatics Researcher**
- Researched and developed machine learning models for investigating the relation between auditory and fMRI-based neuronal representations during music-induced emotions.
- Skills:** • Python (Scikit-learn) • Matlab • fMRI Analysis (*SPM/NiBabel*) • Audio Signal Processing (*MIRtoolbox*) • NeuroInformatics • Cognitive Science






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, Matlab, Java, C, SQL
- ML Libraries**  Scikit-learn, Tensorflow, Keras
- NeuroImaging**  MNE, EEGLAB, SPM, NiBabel
- Misc.**  MS Office, L^AT_EX, 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](https://doi.org/10.1109/EMBC44109.2020.9175324)
- 3 **Patlatzoglou, K.**, Chennu, S., Boly, M., Noirhomme, Q., Bonhomme, V., Bricchant, 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](https://doi.org/10.1007/978-3-030-05587-5_21)

Grants and Awards

- 2017 – 2020  Postgraduate research scholarship grant awarded by the University of Kent
- 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, Warsaw, 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*