Kleanthis Avramidis

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RESEARCH INTERESTS

Audio and Biomedical Signal Processing, Music Information Retrieval
Multimodal Representation Learning, Self-supervised Learning
Affective Computing, Human-Centered Machine Intelligence

EDUCATION

PhD in Computer Science *August 2021 - Present*
University of Southern California, Los Angeles, CA
Advisor: Prof. Shrikanth Narayanan, Signal Analysis and Interpretation Lab

Joint BSc & MEng in Electrical Engineering *October 2015 - July 2021*
National Technical University of Athens, Greece
Advisor: Prof. Petros Maragos, Computer Vision, Speech & Signal Processing Lab
Thesis: *Affective Analysis and Interpretation of Brain Responses to Music Stimuli*
Overall GPA: 8.40/10 (top 12%), Specialization GPA: 9.14/10

High School Diploma *September 2012 - June 2015*
3rd High School of Agia Paraskevi, Greece
GPA: 19.7/20, University Entrance Examination: 18.9/20 (top 1%)

COURSEWORK

Undergraduate: (among others) Speech and Language Processing, Computer Vision, Intelligent Systems, Pattern Recognition, Robotics, Human-Computer Interaction
Graduate: Advanced Algorithm Analysis, Advanced Computer Vision, AI for Social Good, Deep Learning & Applications, Affective Computing, Seminar in CS Research

EXPERIENCE

Signal Analysis and Interpretation Lab *August 2021 - Present*
University of Southern California, Los Angeles, CA
Graduate Research Assistant, under Prof. Shrikanth Narayanan

- Exploring Deep Learning models for Representation Learning of music audio and neuronal data of music listening for affective applications.
- Developing a computational model to advance robustness and trust in Emotion Recognition systems by utilizing self-supervision and data from media sources.
- Leading a subgroup that explores behavioral and activity measures to predict within-family conflicts and reinforce child mental health. Collaboration with Texas A&M University and Florida International University to build a real-world intervention system for monitoring and assisting family well-being.
- Collaborating with the Children's Hospital, Los Angeles, and Dr. Melinda Chang in developing AI methods to efficiently detect Papilledemma and broaden our understanding of Cortical Vision Impairment in children.

Computer Vision, Speech & Signal Processing Lab *July 2019 - July 2021*
National Technical University of Athens, Greece
Undergraduate Research Assistant, under Prof. Petros Maragos

- Conducted Research in Signal Processing and Machine Learning applications to Music, working on the task of Polyphonic Instrument Classification.
- Upon Thesis, conducted research on EEG Signal Processing, Fractal Signal Analysis and Cross-Modal Learning between EEG and audio modalities.

SKILLS

Languages: English (proficient), German (intermediate), Greek (native)
Programming Languages: Python, C, C++, MATLAB, Java, LaTeX
Tools & Libraries: Unix, Git, Visual Studio, Jupyter, Tensorflow, PyTorch

HONORS & AWARDS

- **Second Prize @ NEUROHACK 2022**: Award for a Machine Learning model that identifies and utilizes important biomarkers in prediction of Dementia, 2022.
- **Computer Science PhD Fellowship** *August 2021 - May 2025*
  University of Southern California
- **A Great Moment for Education**: Award and Grant from Eurobank EFG for the highest University Entrance Examination Score of my High School, 2016.

PUBLICATIONS

1. **K. Avramidis**, M. Rostami, M. Chang, and S. Narayanan
   "Automating Detection of Papilledema in Pediatric Fundus Images with Explainable Machine Learning" under review for:
   Proc. Int'l Conf. on Image Processing (ICIP), 2022.
2. **K. Avramidis**, C. Garoufis, A. Zlatintsi, and P. Maragos
   "Enhancing Affective Representations of Music-Induced EEG through Multimodal Supervision and Latent Domain Adaptation"
   Proc. Int'l Conf. on Acoustics, Speech and Signal Processing (ICASSP), 2022.
3. **K. Avramidis**, A. Zlatintsi, C. Garoufis, and P. Maragos
   "Multiscale Fractal Analysis on EEG Signals for Music-Induced Emotion Recognition"
   Proc. European Signal Processing Conference (EUSIPCO), 2021.
4. **K. Avramidis**, A. Kratimenos, C. Garoufis, A. Zlatintsi, and P. Maragos
   "Deep Convolutional and Recurrent Networks for Polyphonic Instrument Classification from Monophonic Raw Audio Waveforms"
   Proc. Int'l Conf. on Acoustics, Speech and Signal Processing (ICASSP), 2021.
5. A. Kratimenos, **K. Avramidis**, C. Garoufis, A. Zlatintsi, and P. Maragos
   "Augmentation Methods on Monophonic Audio for Instrument Classification in Polyphonic Music"
   Proc. European Signal Processing Conference (EUSIPCO), 2020.
6. **K. Avramidis**
   "Reform Education Now: Proposals for State Educational Policies"
   National Consultation, Ministry of Education, Greece, 2016.