Alessandro "Ollie" D'Amico

adamico@ucsd.edu - http://olliedami.co

Education

2020-present   <u>Ph.D. Cognitive Science</u>
UC San Diego, La Jolla, California, USA
Advisor: Virginia de Sa, Ph.D.

2016-2018   <u>B.S. Cognitive Science with Specialization in Computation</u>
UC San Diego, La Jolla, California, USA

2013-2016   <u>A.S. Chemistry (*not conferred*)</u>
Grossmont College, El Cajon, California, USA

Research Experience

2018-Present   Project Coordinator / Lab Assistant (*February 2019 - Present*)
Volunteer Research Assistant (*January 2018 - February 2019*)
Natural Computation Lab, de Sa Lab
Halıcıoğlu Data Science Institute, San Diego Supercomputer Center
University of California, San Diego
Supervisor: Virginia de Sa, Ph.D.

<u>Duties</u>: Designing and improving studies requiring real-time EEG-based brain computer interfaces (BCIs). Creating BCIs which utilize the P300 and error-related potentials and machine learning for clinical and general populations. Creating demonstrations using open source hardware and software in order to explore the potential of cheaper alternatives for BCI applications. Collaborating with other departments including robotics and medicine to utilize EEG in novel domains. Analyzing data offline and creating tools to analyze data in real-time which can communicate with other devices in real-time synchronously. Maintaining IRB approval and other project-related bureaucracy. Contributing to popular repositories in the domain of EEG research.

2015-2019   Project Coordinator / Research Assistant (*August 2016 - August 2019*)
             Volunteer Research Assistant (*May 2015 - August 2016*)
             Center for Understanding and Treating Anxiety
             San Diego State University
             Supervisor: Nader Amir, Ph.D.

       Duties: Conducting electroencephalogram (EEG) appointments on clinical, subclinical and undergraduate subjects, analyzing behavioral and EEG data, establishing, testing, and running a study aimed at reducing anxiety in patients using EEG as a form of biofeedback (neurofeedback). Creating in-house software and scripts in various languages to facilitate data collection, and analyses interfacing with various state-of-the-art technologies. Creating and modifying hardware to be used for the acquisition and processing of real-time EEG data

Teaching Experience

Teaching Assistantship

2019   Teaching Assistant, Department of Cognitive Science, UC San Diego
             COGS 189: Brain Computer Interfaces (Winter '19, Prof. Virginia de Sa)
             (*https://github.com/cogs189wi19/cogs189wi19*)

2020   Teaching Assistant, Department of Cognitive Science, UC San Diego
             COGS 189: Brain Computer Interfaces (Winter '20, Prof. Virginia de Sa)
             (*https://github.com/cogs189wi20/cogs189wi20*)

Publications

Manuscripts in Preparation

D'Amico, A., de Sa, V. R., *Segment Speller: A Rapid, Spatially Independent BCI*

D'Amico, A., Meissel, E., Amir, N., *Specificity of Attention Bias Modification in Error-Related Negativity and Reward Sensitivity*

Baer, K., Taboas, W., **D'Amico, A.**, Amir, N., *Ethnic Differences in the Relationship between the Error-Related Negativity and Anxiety*

Presentations

Symposia

Amir, N., **D'Amico, A.**, Meissel, E. (July 2019)
>Discussant. In Jeremy Pettit (Chair) Recent Developments in Attention Biases and Attention Bias Modification in Pediatric Anxiety. Symposium conducted at the 2019 9th World Congress of Behavioural & Cognitive Therapies, Berlin, DE

Meissel, E., **D'Amico, A.**, McGhie, S., Montero, M., Amir, N. (April 2018)
>Specificity of an Adaptive Attention Control and Attention Bias Modification in Reducing Error Related Negativity. Symposium conducted at the 2018 Annual Convention for the *Anxiety and Depression Association of America*, Washington, D.C.

Amir, N., Shyrock, I., **D'Amico, A.** (November 2017)
>Application of Novel Processing Stream to Tradition Probe Detection Task: Reliability and Validity in Clinical Practice. In N. Amir (Chair) Toward the Clinical Application of Cognitive Bias Modification: Addressing the Psychometric Properties of Measure. Symposium conducted at the 2017 Annual Convention of the Association for Behavioral and Cognitive Therapies, San Diego, CA.

Amir, N., Carmona, A.R., McGhie, S., Montero, M., **D'Amico, A.**, Brown, I. (October 2016)
>Training attention toward positive information: Effects on Feedback Negativity. In N. Amir (Chair) Neuromarkers and Neuromodulation of Attention Bias Modification. Symposium conducted at the 2016 Annual Convention of the Association for Behavioral and Cognitive Therapies, New York, NY.

Posters

Cai, Y., **D'Amico, A.**, Wagner, J., Castellanos, J., Forster, D., Snider, J., de Sa, V. R., Chakravarthy., K. (January 2020)
>Thoracic Spinal Cord Stimulation Reduces Pain and Improves Locomotion in Parkinson Disease and Back Pain. Poster to be presented at the 2020 23rd Annual Meeting of the *North American Neuromodulation Society*, Las Vegas, NV.

D'Amico, A., Ma, T., Wu, Z., de Sa, V. R. (December, 2019)
>Spelling in Paralell: A P300 and Feedback Based Approach. Poster presented at the 2019 IEEE EMBS Symposium and Workshop, San Diego, CA.

D'Amico, A., McGhie, S.**,** Shryock, I., & Amir, N. (November, 2018)
>Neurofeedback: An ERP-Based Approach to Reducing Anxiety. Poster presented at the 2018 annual convention for the *Association for Behavioral and Cognitive Therapies*, Washington, D.C.

McGhie, S.**,** Meissel, E., **D'Amico, A.**, & Amir, N. (April, 2018)
>Examining the Relationship Between ERN in Adolescents and Their Mothers. Poster presented at the 2018 annual convention for the *Anxiety and Depression Association of America*, Washington, D.C.

Nhan, L., Higgins, M., McGhie, S., **D'Amico, A.**, Meissel, E., & Amir, N. (March, 2018).
>Examining the Relationship Between Feedback Negativity and Depression using Time-Frequency Analysis. Poster presented at the 2018 annual Student Research Symposium, San Diego State University, San Diego, CA.

D'Amico, A., Amir, N. (November 2017)
>Obtaining Single Trial Biomarkers for the Online Assessment and Modification of Threat Sensitivity as Treatment of Anxiety Disorders. Poster presented at the 2017 Annual Convention of the Association for Behavioral and Cognitive Therapies, San Diego, CA.

D'Amico, A., McGhie, S., Coronado, C., Wermes, R., Amir, N. (April 2017)
>Online Assessment and Modification of Threat Sensitivity as Treatment of Anxiety Disorders. Poster presented at the 2017 annual conference of Anxiety and Depression Association of America, San Francisco, CA

McGhie, S., **D'Amico, A.**, Coronado, C., Amir, N. (October, 2016)
>A Machine Learning Approach to Processing Errors. Poster presented at the 2016 annual convention for the *Association for Behavioral and Cognitive Therapies*, New York, NY.

Guest Lectures

Winter 2019   Brain Computer Interfaces - COGS 189

Fall 2019   Cognitive Electrophysiology - COGS 179

Winter 2020   Brain Computer Interfaces - COGS 189

Demonstrations and Science Outreach

最强大脑 *"Superbrain"* 2019 (March 2019)

International competitor in China's most popular TV show which is a battle of the brains. The primary purpose of this show is as science outreach in order to promote math and science to the general population. Nanjing, CN

Contextual Robotics Institute Forum: Healthcare Robotics (November 2018)

Using a Brain Computer Interface to articulate a simple robot using alpha waves. Similar frameworks could be used to create neuro-prosthetics and other useful tools. San Diego, CA, USA.

9th Grade General Science, High Tech High Linda Vista (November 2018)

Gave a lecture on introductory neuropsychology, specifically neuroimaging, focusing on fMRI, MEG and EEG. Using the OpenBCI headset, I was able to show classes of freshman the future of neurotechnology with a live demonstration. San Diego, CA, USA.

Ed-Funders Conference (October 2018)

Live demonstration of a Brain Computer Interface capable of being utilized for relaxation and concentration classification in order to facilitate more productive learning. San Diego, CA, USA.

Students Mentored

Xinmeng Xu (2020-present)
Tianyu Ma (2019-present)
Zhijian Wu (2019-present)
Geeling Chau (2019-present)
Ahmed Abdalsattar (2019-present)
Zhengyu Wu (2019)
Namrata Gawali (2016)

Computational and Technical Skills

Languages   Fluent in Object Pascal (Delphi, Lazarus, Simba), MATLAB, R, Python
Proficient in Java, C, C#, C++, JavaScript

Toolboxes   LSL, EEGLAB, ERPLAB, BCILAB, Arduino, scikit-learn, Tensorflow

CAD   OpenSCAD, PrusaSlicer, Ultimaker Cura

Github   *https://github.com/ollie-d/*