

**ALI RAHIMPOUR JOUNGHANI**  
Ph.D. Candidate in Cognitive Neuroscience

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## EDUCATION

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**Graduate Student, Psychological Sciences** (August 2017- present)

University of California Merced, California, USA (<https://www.ucmerced.edu/>)

- Faculty Committee: Heather Bortfeld, Rose Scott, Ramesh Balasubramaniam, and Elif Isbell
- Project title: EEG source localization and fNIRS validation
- GPA: 3.98 out of 4

**Certificate in Quantitative Methods, Quantitative Psychology** (September 2021)

University of California Merced, California, USA (<https://www.ucmerced.edu/>)

**Master of Science, Biomedical Engineering** (September 2013- August 2016)

University of Tehran. Tehran, Iran (<http://www.ut.ac.ir/en>)

- Supervisors: Hossein Ahmadi Noubari and Seyed Kamaledin Setarehdan
- Project title: Investigation of fNIRS application for infant cerebral hemodynamic monitoring: A report of data analysis for feature extraction and infant classification into healthy and unhealthy
- GPA: 3.7 out of 4

**Bachelor of Science in Biomedical Engineering** (January 2008 – September 2012)

Sahand University of Technology, Tabriz, Iran (<http://www.sut.ac.ir/en>)

- GPA: 3.8 out of 4

**Diploma, Physics and Mathematics**

School of Exceptional Talents under supervision of Shahrekord University, Shahrekord, Iran

## AREAS OF EXPERTISE

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- Cognitive Neuroscience
- Experimental Methods in Cognitive Neuroscience
- Application of Machine Learning in Neuroimaging studies
- Interdisciplinary Research
- Statistical Modeling
- Biomedical Engineering
- EEG and fNIRS System Setup
- Biological Signal Processing
- Cross-team Collaboration
- Team Training & Leadership

## TECHNICAL PROFICIENCIES

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### Programming:

- R, Python, MATLAB, Visual Studio, SAS, Mplus, SPSS, OpenBUGS, Excel

### Statistical Modeling:

#### Regression

- *GLM, Logistic Regression, Factor Analysis, SEM, MLM, longitudinal data analysis, Bayesian modeling*

#### Supervised Machine Learning

- *SVM, RBF, MLP, SOP, PCA, KNN*

#### Unsupervised Machine Learning

- *FCM, K-Means, ICA, SOM*

#### Bioinspired Computing

- *Genetic algorithm, ABC, ACO, WSN, Cellular Automata, Neural Network*

#### Deep Learning

- *CNN, RNN*

## PROFESSIONAL EXPERIENCE

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- Organizing committee member and chair: *fNIRS in Neurodevelopment Research* and *fNIRS Standards Sessions*, Society for Near-Infrared Spectroscopy (SfNIRS) Annual Meeting, 2021. (<http://fnirs2021.org/>) (May 2021-present)
- Mentoring PhD students, post-docs, and university researchers for fNIRS study design, setup, data acquisition, and data analysis (July 2019-present)
  - Felix Hao Wang- *University of Nevada Las Vegas*
  - Samantha R. O'Connell- *University of Southern California*
  - Amal Isaiah- *University of Maryland*
  - Pradyumna Lanka- *University of California Merced*
  - Frances Nowlen- *University of Southern California*
- fNIRS study design, and data processing. Project title: Investigating Executive Functioning of OSA Children in pre- and post- Tonsillectomy. University of Maryland School of Medicine, Baltimore, MD (October 2021-present)
- fNIRS probe design, data acquisition, and data processing. Project title: Auditory stream segregation in cochlear implant users, Department of Otolaryngology, Keck School of Medicine, University of Southern California, Los Angeles, CA (May 2021-present)

- fNIRS data acquisition and signal processing. Project title: Executive function in bilinguals, Bortfeld Lab, University of California, Merced, CA (Aug 2019)
- fNIRS data acquisition and signal processing. Project title: Speech rhythm perception, Bortfeld Lab, University of California, Merced, CA (Aug 2019)
- fNIRS setup, probe design, data acquisition, and data processing. Project title: Timing behavior and motor network interaction, sensorimotor neuroscience lab, University of California, Merced, California. (Aug 2017-present)
- Troubleshooting, beta testing and development of MATLAB-based NIRS Toolbox and PHOEBE. (Aug 2017-present)
- EEG source localization: EEG training, probe design, data acquisition, and data analysis. (Aug 2017-present)
- R&D biomedical engineer. Project title: Testing and data processing of fNIRS system, research on the physiology of pain-transmission pathways, improvement of neuromuscular electrical stimulation and designing an experiment to test EOG system. Negar Andishgan Co. Ltd. (<https://negand.com/en/>), Tehran, Iran (May 2016)
- fNIRS probe design, data monitoring, data acquisition and processing of cerebral blood flow on Infants with disorders, Neonatal Intensive Care Unit (NICU)-Mofid Children's Hospital, Tehran, Iran. (August 2015)
- fNIRS monitoring, data acquisition and processing on newborn Infants, Mahdijeh Hospital, Tehran, Iran. (September 2015)
- fNIRS data acquisition and processing on mental arithmetic task, NIRS laboratory, University of Tehran, Tehran, Iran. (May 2015)
- Collaborating with NIRS lab to design and develop custom-made fNIRS technology, University of Tehran, Tehran, Iran. (Oct 2014)
- EEG data acquisition with approach of VEP BCI, IRICSS, Tehran, Iran. (January 2015)
- Administrator of Talented Students' office at Sahand University of Technology, Tabriz, Iran. (February 2013)
- Internship, Biomedical/Clinical Engineer, Kashani Hospital, Shahrekord, Iran. (February 2011)

## **PUBLICATIONS & CONFERENCE PROCEEDINGS**

**Rahimpour, A.**, Pollonini, L., Comstock, D., Balasubramaniam, R., & Bortfeld, H. (2021). The effect of study design context on timing behavior and cortical brain activation: fNIRS alternating vs. block study design. (*In progress*)

**Rahimpour, A.**, Backer, K.C., Pollonini, L., Comstock, D., Balasubramaniam, R., & Bortfeld, H. (2021). Neural basis of synchronized and syncopated rhythmic finger tapping assessed via electroencephalography. (*In progress*)

Ghafari T., **Rahimpour A.**, Esteky H. (2021). Spatial properties of visual field in short-term memory. (*In press: Scientific Reports, 2021*)

Heravi, H., **Rahimpour, A.**, Delgarmi, M., & Ebrahimi, A. (2021). Automatic landmark detection of human back surface from depth images via deep learning. (*In press: Biomedical Signal Processing and Control, 2021*)

Heravi, H., Aghaeifard, R., **Jounghani, A. R.**, Ebrahimi, A., & Delgarmi, M. (2020). Extracting features of the human face from Rgb-D images to plan facial surgeries. *Biomedical Engineering: Applications, Basis and Communications*, 32(06), 2050042.

**Rahimpour, A.**, Pollonini, L., Comstock, D., Balasubramaniam, R., & Bortfeld, H. (2020). Tracking differential activation of primary and supplementary motor cortex across timing tasks: An fNIRS validation study. *Journal of Neuroscience Methods*, 108790.

Ebrahimzadeh, E., Shams, M., **Jounghani, A. R.**, Fayaz, F., Mirbagheri, M., Hakimi, N., ... & Soltanian-Zadeh, H. (2020). Localizing confined epileptic foci in patients with an unclear focus or presumed multifocality using a component-based EEG-fMRI method. *Cognitive Neurodynamics*, 1-16.

**Rahimpour, A.**, Noubari, H. A., & Kazemian, M. (2018). A case-study of NIRS application for infant cerebral hemodynamic monitoring: A report of data analysis for feature extraction and infant classification into healthy and unhealthy. *Informatics in Medicine Unlocked*, 11, 44-50.

**Rahimpour, A.**, Dadashi, A., Soltanian-Zadeh, H., & Setarehdan, S. K. (2017, April). Classification of fNIRS based brain hemodynamic response to mental arithmetic tasks. In *2017 3rd International Conference on Pattern Recognition and Image Analysis (IPRIA)* (pp. 113-117). IEEE.

Jahani, S., Berivanlou, N. H., **Rahimpour, A.**, & Setarehdan, S. K. (2015, November). Attention level quantification during a modified stroop color word experiment: an fNIRS based study. In *2015 22nd Iranian Conference on Biomedical Engineering (ICBME)* (pp. 99-103). IEEE.

## ABSTRACTS & PRESENTATIONS

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R. O'Connell, S., **Rahimpour, A.**, Papadopoulous, J., Nowlen, F., Bortfeld, H., Goldsworthy, R. (Feb 2022). *Tracking motor and auditory cortex activation during synchronous tapping in cochlear implant users and normal-hearing listeners: An fNIRS validation study*. 45<sup>th</sup> Annual Conference of Association for Research in Otolaryngology (ARO), San Jose, CA. (Submitted)

Ghafari, T., **Rahimpour, A.**, Esteky, H. (September 2021). *Memory Performance is heterogeneous around visual field*. Brenstein Network Computational Neuroscience Conference, 2021.

- Rahimpour, A.**, Pollonini, L., Comstock, D., Balasubramaniam, R., & Bortfeld, H. (October 2021). *The effect of study design context on timing behavior and cortical brain activation: fNIRS alternating vs. block design study*. Society for Virtual fNIRS Conference 2021.
- Rahimpour, A.**, Comstock, D., Pollonini, L., Balasubramaniam, R., & Bortfeld, H. (January 2021). *Tracking differential activation of primary and supplementary motor cortex across timing tasks: An fNIRS validation study*. 4th Annual Boston University Neurophotonics Symposium, Boston, MA.
- Rahimpour, A.**, Comstock, D., Pollonini, L., Balasubramaniam, R., & Bortfeld, H. (January 2021). *The effect of study design context on timing behavior and cortical brain activation: fNIRS alternating vs. block design study*. 4th Annual Boston University Neurophotonics Symposium, Boston, MA.
- Ebrahimzadeh, E., Shams, M., **Rahimpour Jounghani, A.**, Fayaz, F., Mirbagheri, M., Hakimi, N., ... & Soltanian-Zadeh, H. (2019). *Epilepsy Presurgical Evaluation of Patients with Complex Source Localization by a Novel Component-Based EEG-fMRI Approach*. Iranian Journal of Radiology, 16(Special Issue).
- Rahimpour, A.**, Pollonini, L., Comstock, D., Balasubramaniam, R., & Bortfeld, H. (November 2019). *Tracking differential activation of primary and supplementary motor cortex across timing tasks: an fNIRS validation study*. 60<sup>th</sup> Annual Meeting of Psychonomic Society, Montreal, Quebec, Canada.
- Rahimpour, A.**, Pollonini, L., Comstock, D., Balasubramaniam, R., & Bortfeld, H. (June 2019). *Tracking differential activation of primary and supplementary motor cortex across timing tasks: an fNIRS validation study*. 20th Annual UC Systemwide Bioengineering Symposium, Merced, CA.
- Rahimpour, A.**, Comstock, D., Pollonini, L., Balasubramaniam, R., & Bortfeld, H. (May 2019). *Tracking differential activation of primary and supplementary motor cortex across timing tasks: An fNIRS validation study*. Berkeley/Stanford Developmental Psychology Symposium, Berkeley, CA.
- Rahimpour, A.**, Pollonini, L., Comstock, D., Balasubramaniam, R., & Bortfeld, H. (March 2019). *Tracking differential activation of primary and supplementary motor cortex across timing tasks: an fNIRS validation study*. 26<sup>th</sup> Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.
- Borjkhani, M., Khazenifard A., & **Rahimpour, A.** (May 2014). *Probabilistic Study of different synchronization measures: Application to electroencephalographic*. Poster presented at Brain and Clinical Neuroscience Congress (BCNC), Tehran, Iran.

## TEACHING EXPERIENCE

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- Teaching Assistant of Cognitive Psychology, Spring 2022, Instructor: Robert Yancey
- Teaching Fellow of Industrial/Organizational Psychology, Fall 2021, Instructor: Ross Avilla
- Teaching Fellow of Developmental Cognitive Neuroscience, Spring 2021, Instructor: Heather Bortfeld

- Teaching Assistant of Physiological Psychology, Fall 2020, Instructor: Meaghan Altman
- Teaching Assistant of Industrial/Organizational Psychology, Fall 2020, Instructor: Ross Avilla
- Teaching Assistant of Cognitive Psychology, Spring 2020, Instructor: Robert Yancey
- Teaching Assistant of Cognitive Development, Fall 2019, Instructor: Robert Yancey
- Guest lecturing of Introduction of Neuropsychology, Summer 2019, Instructor: Anabel Castillo
- Guest lecturing of Introduction of Neuroimaging Methods, Summer 2019, Instructor: Anabel Castillo
- Teaching Assistant of Developmental Cognitive Neuroscience, Spring 2019, Instructor: Heather Bortfeld
- Teaching Assistant of Alcohol, Drugs and Behaviors, Fall 2017 & 2018, Instructor: Robert Yancey
- Teaching Assistant of Clinical Neuropsychology, Spring 2018. Instructor: Alex Khislavsky
- Teaching Assistant of Statistical Pattern Recognition, Fall 2015, Instructor: Babak Nadjar Araabi
- Teaching Assistant of Biomedical Instruments, Fall 2015, Instructor: Kamaledin Setarehdan
- Teaching Assistant of Designing Linear Control Systems, Spring 2012, Instructor: Ahmad Akbari
- Teaching Assistant of Advanced Electronics, Spring 2011, Instructor: E Najafi Aghdam
- Teaching Assistant of Engineering Mathematics, Fall 2010, Instructor: Sadeghi Yazdankhah

### **AD HOC REVIEWER**

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- Associate editor of the *Frontiers in Humans Neuroscience* (November 2021)
- Reviewer of the Society of SfNIRS Conference 2021 (August 2021)
- Reviewer of Medical and Biological Engineering and Computing (MBEC) (July 2021)
- Contributing reviewer of the *Cortex* journal (August 2021)
- Contributing reviewer of the journal of *Cognitive Neuroscience* (June 2021)
- Contributing reviewer of the *PNAS* journal (March 2021)
- Contributing reviewer of the *Frontiers Human Neuroscience* journal (Jan 2021)

- Contributing reviewer of the Cerebral Cortex journal (*Dec 2020*)
- Reviewer of the Biomedical Engineering: Applications, Basis, and Communications journal (*July 2020*)
- Contributing reviewer of the journal of Infant, Behavior and Development (*Dec 2020*)
- Reviewer of the IEEE/Transaction on Neural Systems & Rehabilitation Engineering (*Jan 2020*)
- Contributing reviewer of the Elsevier journals: Hearing Research- Medical Hypothesis- Computer Methods and Programs in Biomedicine. (*Dec 2017*)
- Contributing reviewer of research project grant proposal- Leverhulme Trust. (*August 2019*)

## **HONORS & AWARDS**

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- Competitive Hatano Cognitive Development Research fellowship award, UC Merced, CA, USA (*May 2021*)
- Accepted innovative proposal and attending advances workshop in UC Berkeley NSF-Innovation Corps program (*Oct 2020*)
- Competitive Developmental Student Research award, UC Merced, CA, USA (*June 2020*)
- Awarded Bobcat Research Support fellowship, UC Merced, CA, USA. (*Summers, 2018-2022*)
- Awarded University of California GSA Travel grant, UC Merced, CA, USA. (*Winter 2019*)
- Best master thesis award from institute for cognitive science studies (IRICSS). (*Winter 2017*)
- Second ranked in the M.Sc. program and selected as the exceptional talents of National Universities in Iran. (*Spring 2011*)
- Awarded research grant from Mofid children's hospital. (*Spring 2017*)
- Awarded research grant from Cognitive Sciences and Technologies Council (CSTS) of Iran. (*Summer 2016*)
- Ranked 6th out of 128 among biomedical students in the B.Sc. program and selected as the exceptional talents of National Universities in Iran. (*Spring 2011*)
- Ranked first in the annual festival of scientific magazines of universities in Iran for publishing a national magazine in biomedical engineering, Harkat festival- Editor in chief. (*Spring 2010*)

## EXTRACURRICULAR ACTIVITIES

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- Organizing committee member of SfNIRS conference 2021 (<http://fnirs2021.org/>) (May 2021-present)
- Member of Iranian Students of California (ISC) (Aug 2020- May 2021)
- fNIRS laboratory tour guide of high school students, Bortfeld lab, University of California, Merced, California (Feb 2020)
- Graduate student organizer of Developmental Psychology Colloquium Series (Jan 2020- May 2020)
- Member of Cognitive Neuroscience Society (CNS) (Jan 2019- present)

## LANGUAGE SKILLS

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- Persian (Native)
- English (Fluent)
- Arabic (Elementary)
- Deutsch (Familiar)
- Turkish (Familiar)

## REFERENCES

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### **Heather Bortfeld**

Professor of developmental cognitive neuroscience, Department of Psychological Sciences and Cognitive and Information Sciences, University of California, Merced, Merced, California, USA. [hbortfeld@ucmerced.edu](mailto:hbortfeld@ucmerced.edu)

### **Ramesh Balasubramaniam**

Professor of cognitive science, Cognitive and Information Sciences, University of California, Merced, California, USA. [ramesh@ucmerced.edu](mailto:ramesh@ucmerced.edu)

### **Luca Pollonini**

Department of Engineering Technology and Electrical and Computer Engineering, University of Houston, TX, USA. [lpolloni@central.uh.edu](mailto:lpolloni@central.uh.edu)

### **Hamid Soltanian-Zadeh**

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