Seyhmus Guler

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Experience

Research fellow, *Department of Psychiatry* March 2020 – Present
Massachusetts General Hospital and Harvard Medical School *Boston, MA*

- Leads a project on the effect of non-invasive brain stimulation and acupuncture on chronic low-back pain.
- Acquisition, cleaning, and analysis of neuroimaging (MRI, fMRI, DTI) data using tailored pipelines.
- Exploring biomarkers of disease in neuroimaging data using machine learning.

Research fellow, *Department of Radiology* Nov. 2016 – Feb. 2020
Boston Children's Hospital and Harvard Medical School *Boston, MA*

- Developed strategies for motion correction in fMRI and missing-data completion in tensor data.
- Analyzed resting-state fMRI data to show functional abnormalities in children with autism vs healthy children.
- Implemented fMRI-neurofeedback experimental protocols to train and improve brain function via biofeedback.

Lecturer, *Department of Electrical and Computer Engineering* June 2016 – Aug. 2019
Northeastern University *Boston, MA*

- Created curriculum for and taught Noise and Stochastic Processes (EECE 3468) three times; and Introduction to Linear Algebra and Probability for Data Science (DS5020) once. Course evaluations are available upon request.

Research assistant, *Department of Electrical and Computer Engineering* Sep. 2011 – Oct. 2016
Northeastern University *Boston, MA*

- Formulated, solved, and tested optimization problems for optimized current delivery in transcranial direct current stimulation (tDCS) and electrocorticography (ECoG) stimulation.

Relevant Skills

Programming languages: Python, Matlab, Bash, R, C++
Python libraries: Pandas, NumPy, Seaborn, Matplotlib, Scikit-learn, PyTorch
Version control/publication tools: Git, Svn, LaTeX, Microsoft Office
Neuroimaging data analysis: FSL, Nipype, Freesurfer, fMRIPrep, SPM, CONN, BIDS, ANTs, Weka, Nilearn, Monai
Hands-on experience : Linux workstations, Computer clusters, Operating an MRI scanner, tDCS setup and application

Education

Northeastern University Boston, MA
Ph.D. in Electrical Engineering *Sep 2011 – Oct 2016*

Bilkent University Ankara, Turkey
B.Sc. in Electrical and Electronics Engineering *Sep 2006 – Jun 2011*

Selected coursework

Graduate: Numerical optimization, Combinatorial optimization, Pattern recognition, Machine learning, Detection and estimation theory, Information theory, High performance computing, Graph theory, Finite element method.
Undergraduate: Algorithms and programming I-II, Fundamental structures of computer science I, Computer networks, Telecommunications I-II, Electromagnetics I-II, Digital signal processing

Awards and Honors

Graduate research assistantship (GRA), Northeastern University, Boston, MA (2011-2016)
Full scholarship for undergraduate studies, Bilkent University, Ankara, Turkey (2006-2011)
Ranked 210^{th} in 2006 National University Entrance Exam, Turkey ($\sim$ 1.5 million students)
Ranked 5^{th} (Silver medalist) in 13^{th} National Mathematics Olympiad, TUBITAK, Ankara, Turkey ($\sim$10k students)
Ranked 21^{st} (Silver medalist) in 7^{th} National Secondary School Mathematics Olympiad, TUBITAK, Ankara, Turkey

Publications

🎓– Four journal papers, three conference papers, and six conference abstracts, all peer-reviewed.