Arash Ashrafnejad

CONTACT INFORMATION

SmartAlpha Inc.
Machine Learning Department
METU Technopolis Silicone Building, 06800
Çankaya, Ankara, TURKEY

E-mail: arash@smartalpha.ai
Website: www.arashash.com
Social:@4rash4sh

EDUCATION

Bilkent University, Ankara Turkey 2015-2019

B.S. Electrical & Electronics Engineering, GPA: 3.62/4.0, Rank: 44/304

A-Grade Courses: General Physics, Calculus, Algorithms and Programming, English and Composition, Waves-Optics-Thermodynamics, Digital Design, Microprocessors, Electromagnetics, Signals and Systems, Engineering Mathematics, Microeconomics, Data Analysis, Telecommunications, fMRI

SELECTED AWARDS

Bilkent University, Research Excellence Award for works in Computational Neuroscience 2019

Bilkent University, Voluntary Professional Activities Award for offering PyData101 course 2018

Bilkent University, Best Term Project Award for Wireless FPGA dead-reckoning 2017

Bilkent University, Full Scholarship (tuition exception upto 5 years) 2015

Iran National Physics Olympiad, Semi-Finalist Award 2013

SELECTED PROJECTS

TUBITAK Funded Projects 2019-2021

- Nerveblox, real-time semantic segmentation of ultrasound nerve blocks ∼$100K
- Rievi, lung ultrasound artifacts detection for COVID-19 using Deep Learning ∼$50K
- ProstateWorks, real-time registration of ultrasound and MRI for TRUS guided biopsy ∼$50K
- StageTrue, real-time engagement of the audience using pose estimation and voice recognition ∼$50K

WORK EXPERIENCE

Machine Learning Engineer, SmartAlpha 2019-Present

Leading the above mentioned Deep Learning Projects

- Design data collection schemes
- Develop efficient real-time models
- Train with augmentation and hyper-parameter tuning
- Deploy models on cloud and edge devices and utilize the user feedback

Internship, TurkAI 2019

- Multilateration using Bluetooth Beacons for kidi.io project
- Implemented Socket.io sever for receiving data and storing in MongoDB
- Applied Kalman filtering with multilateration algorithm

MRI Data Analyst, Twin Lab at Aysel Sabuncu Brain Research Center, 2018

- Developed novel analysis methods to analyze large fMRI dataset of more than hundred participants using Machine Learning
- Classified individuals at high-risk for psychosis based on functional brain activity during working memory processing

Undergraduate Researcher, Computational and Biological Vision Group 2017-2019

- Developed and simulated novel estimation techniques for population receptive field mapping of human visual field using fMRI scans
- Collaborated on a project that trained Deep Convolutional Neural Networks that discriminate between different types of material kinematics

Undergraduate Researcher, Imaging and Computational Neuroscience Laboratory 2017
- Researched on Neural Representation of Visual Objects and Actions to reveal the details of category representation across the entire brain
- Developed fMRI data preprocessing and analysis pipeline in Nipype

Research Internship, National Magnetic Resonance Research Center 2017
- Designed, implemented and presented a digital feedback controller for providing desired current signals to MRI gradient coils
- The FPGA provides centeraligned PWM signals to drive the H-bridge circuit
- The PID and coil parameters are set using a Bluetooth based Android Application

Teaching Experience

Content Developer, CIS 522 Deep Learning at University of Pennsylvania 2020
- Working with Prof Konrad Kording and Prof Lyle Ungar, developed didactic coding and theoretical exercises for Deep Neural Networks, Auto-encoders, and GANs.

Teaching Assistant, Neuromatch Academy 2020
- Taught an online school curriculum of computational neuroscience.
- As part of the technical team in NMA, tested and recommended hardware and software tools for video production in addition to training the post-production team.

Instructor, IEEE Bilkent 2018
- developed and introduced PyData101, a 12 week course that teaches applied data science with python to beginners. Some main Python libraries used are Numpy, SciKit, Matplotlib, Pandas and NLTK.
- Sample lecture video

Teaching Assistant, Introduction to fMRI course at Bilkent Unviersity 2017
- Taught Data Analysis using Nipype and prepared an assignment using collected data

Teaching and Lab Assistant, Digital Design course at Bilkent Unviersity 2017
- Sample tutorial video
- Sample recitation video

Conference Presentation

Brainhack Ankara 2020
- Learning Algorithm for Random Booleean Networks

Neuromatch Conference 2020
- A Biophysically Inspired Learning Algorithm for Deep Neural Networks

European Conference on Visual Perception 2018
- Test of Goodness of population receptive field estimates with computer simulations
- Deep Convolutional Neural Networks discriminate between different types of material kinematics

International Symposium on Brain and Cognitive Science 2018
- Analysis of Population Receptive Field Estimation Technique in Neuroimaging

Educational Content

YouTube channel for teaching Deep Learning
YouTube channel for teaching Digital Logic

Certification

Deep Neural Networks with PyTorch (with Honors) by IBM
Deep Learning Specialization by Andrew Ng

Languages

Persian (*native*), English (*near-native*), Turkish (*intermediate*), French (*novice*)
Python, MATLAB, R, Julia, Javascript, C/C++, VHDL, Verilog, Assembly, LaTeX