Aryan Mobiny

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Github Linkedin Google Scholar Personal Page Easy-TensorFlow

FIELDS OF INTEREST

- Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Reinforecement Learning.

QUALIFICATIONS

- Skilled professional with comprehensive background in machine learning and deep learning. Currently a Ph.D. student with a well-established publication record as well as well-known open source software and projects worldwide. Very interested to define the research and project agenda independently regarding the needs and necessities. Also very interested in teamwork activities with having the strong evidence regarding the open source contributions.

ACADEMIC DETAILS

Examination	University	Year
Ph.D. in Electrical and Computer Engineering	*University of Houston*	2015 - Present
MS in Electrical and Computer Engineering	*University of Tehran*	2011 - 2014
BS in in Electrical and Computer Engineering	*Iran University of Science and Technology*	2006 - 2011

TECHNICAL SKILLS

- **Script** (Python, Shell, R), **Web** (CSS,HTML), **Tools** (Eclipse, LaTeX), **Frameworks & Packages** (Caffe, TensorFlow, Theano, CNTK, Keras, OpenCV, Scikit-learn, PyTorch), **Operating Systems** (Linux, Windows, Mac)

EXPERIENCES

- **University of Houston** (Graduate Research Assistant) *(Sep'15 - Present)*
  - Houston Ubiquitous Learning Algorithms (HULA) Laboratory [WebPage] *(Jan'17 - Present)*
    - Working under Dr. Nguyen's supervision to investigate the effectiveness of "Deep Learning" and "Reinforcement Learning" techniques in various applications such as games, biomedical image analysis, etc.
      - Design a Memory-Augmented Recurrent adaptive model capable of incorporating expert domain knowledge in real-time to improve its decision function.
      - Use Capsule Network as an alternative to convolutional neural networks in detecting lung nodules and introducing a mechanism called "consistent dynamic routing" that results in 3×speedup of Capsule Network.
      - Design and implement a novel fully denesly connected 3D convolutional network to model the cellular and vascular structure in the mouse brain through Semantic Segmentation.
      - Design a pipeline to detect target and effector cells using Faster RCNN, and a mixture of Capsule Network and Bidirectional LSTM for liveness detection of each type of cell.
  - Brain-Computer Interface Laboratory [WebPage] *(Sep'15 - Dec'16)*
    - Worked with Dr. Vidal to apply machine learning approaches in the design of non-invasive brain-machine interface and robotic systems for rehabilitation.
      - Assaying neural and head movement responses associated with creative video-game play in children. [Link]
- **University of Tehran** (Graduate Research Assistant) *(Sep'11 - Sep'14)*
  - Machine Intelligence & Robotics Laboratory [WebPage] *(Sep'12 - Sep'14)*
    - Worked with Dr. Arbabi to design and implement a mental-task-based BCI which helps people with severe disabilities (e.g. ALS) to have more control over their body and environment

PUBLICATIONS

1. Aryan Mobiny and Hien Van Nguyen. Fast capsnet for lung cancer screening. In *International Conference on Medical Image Computing and Computer-Assisted Intervention*, pages 741–749. Springer, 2018. [Paper, Code]

2. Aryan Mobiny, Hien Van Nguyen, Supratik K. Moulik, Naveen Garg and Carol C. Wu. Radiologist-Friendly and Automatic Lung Cancer Screening Using Memory Recurrent Networks. IEEE Transactions on Biomedical Imaging, 2018 (under review) [Link to Abstract]

3. Aryan Mobiny, Supratik Moulik, and Hien Van Nguyen. Lung cancer screening using adaptive memory-augmented recurrent networks. *arXiv preprint arXiv:1710.05719*, 2017 [Preprint, Code]

4. Aryan Mobiny, Akshay Sujatha Ravindran, Jesus G Cruz-Garza, Andrew Paek,Anastasiya Kopteva and Jose L Contreras Vidal. Assaying neural patterns using scalpelectroencephalography from children during anaturally engaging unconstrained video gameplaying experience. IEEE Dataport, 2017 [Paper]

5. Jose Luis Contreras-Vidal, Akshay Sujatha Ravindran, Jesus G. Cruz-Garza, Anastasiya Kopteva, Andrew Paek, Aryan Mobiny and Zachery R. Hernandez. Multi-modal mobile brain-body imaging (MoBI) dataset for assaying neural and head movement responses associated with creative video game play in children. IEEE Dataport, 2017 [Link]

6. Aryan Mobiny, Pegah Chavoshi Chamani, Ehsan Arbabi and Tooraj Abbasian Najafabadi. EEG-Based Brain-Computer Interface: A Novel Design Using Twelve Motor and Non-Motor Related Mental Tasks, 2016. [Paper]

7. Aryan Mobiny, Ehsan Arbabi and Tooraj Abbasian Najafabadi. A ten-channel brain-computer interface system based on six mental tasks. The 6th Iranian Conference on E-Health and ICT Application in Medical Science, 2014. [Paper]

8. Aryan Mobiny, Ehsan Arbabi and Tooraj Abbasian Najafabadi, Feature selection for brain-computer interface with six motor imagery Tasks Using Orthogonal Forward Selection. The 5th Iranian Conference on Bioinformatics, 2014. [Paper]

OPEN SOURCE PROJECT

- **Easy-TensorFlow** (Tutorial) [GitHub, Website] *(Aug'17 - Present)*
  - This open source project is aimed to provide simple and ready-to-use tutorials for TensorFlow.
  - This project has been GitHub trending repository of the month

INVITED TALKS & WORKSHOPS

- "Applications of deep learning in biomedical datasets and workshop on deep learning with TensorFlow", IEEE EMBS Houston Chapter *Dec'17*
- "TensorFlow in Deep Learning Research Workshop", UH Mathematics department [Link] *Feb'18*
- "Deep Learning in TensorFlow Workshop", Center for advanced computing and data science [Link] *Apr'18*

HONORS & AWARDS

- Fellow of Center for Advanced Computing and Data Systems at University of Houston. *(Sep'15 - Present)*
- Presidential Fellowship, University of Houston, Cullen College of Engineering *(Sep'15 - Present)*
- Ranked 2^{nd} among M.Sc. control and machine intelligence major student, UT, Tehran *Sep'14*
- Ranked top 1% in nationwide electrical engineering graduate entrance exam in Iran *Sep'11*

REFERENCES

- Dr. Hien Van Nguyen, Assistant Professor of Electrical and Computer Engineering, University of Houston
- Prof. Robert Azencott, Professor of Mathematics, University of Houston
- Dr. David Mayerich, Assistant Professor of Electrical and Computer Engineering, University of Houston