Seyed Ali Osia

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Research Interests

- Privacy in Machine Learning: User Data Privacy, Differential Privacy, Cloud Privacy
- Deep Learning: Information Theoretic Analysis, Regularization, Generalization, Generative Models
- Probabilistic Machine Learning: Approximate Inference, Bayesian Nonparametric Models

Education

- Sharif University of Technology, Tehran, IRAN. September 2014 - Now
  Ph.D. Candidate in Computer Engineering - Artificial Intelligence, **Current GPA: 19.52/20**
  Supervisor: Prof. Hamid R. Rabiee
  Title of Ph.D. Proposal: *Deep Feature Extraction by Information Regularization*
  Coursework: Machine Learning (19.9/20), Statistical Learning(20/20), Probabilistic Graphical Models(20/20), Stochastic Processes (20/20), Information Theory (18.7/20), Approximation Algorithms (20/20), Digital Image Processing (20/20), Neuroscience (19/20)

- Sharif University of Technology, Tehran, IRAN. September 2010 - June 2014
  B.Sc. in Computer Engineering - Software Engineering, **GPA: 18.14/20**
  Thesis: *Human Body Pose Estimation by Using 3D Point Cloud*, 20/20

Honors and Awards

- Awarded Fellowship of National Elite Foundation of Iran for, 2017
- Awarded Fellowship of National Elite Foundation of Iran for, 2016
- Admitted as a **direct Ph.D. student** to Sharif University of Technology, 2014
- Introduced as scientific elite by the National Elite Foundation of Iran, 2010
- **Bronze Medal** in Iranian National Olympiad in Math, 2009

Publication

- Seyed Ali Osia, Ali Shahin Shamsabadi, Ali Taheri, Kleomenis Katevas, Hamid R. Rabiee, Nicholas D. Lane, Hamed Haddadi, **Privacy-Preserving Deep Inference for Rich User Data on The Cloud**, Available on ArXiv, October 2017(Paper, Code)
- Seyed Ali Osia, Ali Shahin Shamsabadi, Ali Taheri, Hamid R. Rabiee, Nicholas D. Lane, Hamed Haddadi, **A Hybrid Deep Learning Architecture for Privacy-Preserving Mobile Analytics**, Available on ArXiv, March 2017(Paper)
- Sina Sajadmanesh, Sina Jafarzadeh, Seyed Ali Osia, Hamid R. Rabiee, Hamed Haddadi, Yelena Mejova, Mirco Musolesi, Emiliano De Cristofaro, Gianluca Stringhini, **Kissing Cuisines: Exploring Worldwide Culinary Habits on the Web**, 26th International World Wide Web conference, 3-7 April, 2017, Perth, Western Australia. Available on ArXiv, October 2016. (Paper, MIT Tech Review, Sciences et Avenir, France24, ReachMD, NEXO, Independent)

Research Experience

- **Privacy Preserving Deep Inference** (2016-Now) In this work, we tried to address the privacy concern rises when an end-user interact with a cloud service which infer some knowledge by using a deployed deep model. In order to solve this problem, we proposed a hybrid user-cloud framework and a new training algorithm. In this project I am collaborating with Prof. Hamed Haddadi.
- **Databox** (2016) I collaborated with Prof. Hamed Haddadi and implemented two state of the art deep models (for face detection and face recognition) on Raspberry Pi and evaluate their efficiencies.
- **Storage Management** (2016) I collaborated with Prof. Hossein Asadi on a cache I/O behavior prediction project with recurrent neural networks.
- **Food Project** (2016) I implemented the deep models used in the Kissing Cuisines paper.
- **Multiple Generative RNNs** (2016) I worked with Ali Taheri on his M.Sc. thesis which was about sequence labeling with multiple generative RNNs with shared input and output.

- **Calcium Cell Imaging** (2015) I worked with Dr. Sara Pahlavan in Royan Institute and implemented a MATLAB tool for processing calcium cell imaging.
- **Spike Sorting** (2015) I collaborated with Dr. Morteza Moazami and implemented a MATLAB toolbox for spike sorting based on bayesian non-parametric methods and hierarchical clustering.
- **Pose Estimation** (2013) I worked with Prof. Shohreh Kasaei and did my B.Sc. thesis on the human body pose estimation problem, using 3D point cloud.

Teaching Experience

- **Teaching Assistant**
  Deep Learning, Sharif University of Technology, (Fall 2017), Prof. Soleymani
  Probabilistic Graphical Model, Sharif University of Technology, (Spring 2017), Prof. Soleymani
  Artificial Intelligence, Sharif University of Technology, (Spring 2017), Prof. Soleymani
  Probabilistic Graphical Model, Sharif University of Technology, (Spring 2016), Prof. Soleymani
  Statistical Learning, Sharif University of Technology, (Spring 2016), Prof. Rabiee
  Machine Learning, Sharif University of Technology, (Fall 2015), Prof. Soleymani
  Stochastic Processes, Sharif University of Technology, (Fall 2015), Prof. Rabiee
  Machine Learning, Sharif University of Technology, (Spring 2015), Prof. Rabiee
  Engineering Probability and Statistics, Sharif University of Technology, (Fall 2014), Prof. Rabiee
  Introduction to 3D Computer Vision, Sharif University of Technology, (Fall 2012), Prof. Kasaei
  Numerical Methods, Sharif University of Technology, (Fall 2011), Dr. Gharib

- **Teaching**
  Mathematics and Geometry, Allameh Helli 1 high school, Tehran, Iran, (2010-2014)

Skills

- Natural Languages: Persian (Native), English (Fluent)
- Programming: Java, Python, C++, C#, MATLAB
- Machine Learning: Scipy Stack, Pandas, Scikit Learn, Keras, Caffe, MXNet, Tensorflow
- Computer Vision: OpenCV, Point Cloud Library
- Image Processing: GIMP, ImageMagick, Inkspace