Curriculum Vitae

AMIR R. ASADI

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RESEARCH INTERESTS

- Machine learning
- Information theory
- High dimensional probability and statistics
- Data compression
- Community detection

EDUCATION

- **Princeton University**, Princeton, New Jersey, USA.
  - Ph.D. candidate in Electrical Engineering — Sep. 2017 to present
    - Advisor: Professor Emmanuel Abbe
  - M.A. in Electrical Engineering — Sep. 2015 to Sep. 2017
    - Advisors: Professors Emmanuel Abbe and Sergio Verdú
  - GPA: 3.972/4

- **Sharif University of Technology**, Tehran, Iran. — Sep. 2010 to Aug. 2015
  - B.Sc., Electrical Engineering, Communications.
  - B.Sc., Mathematics.
    (Double major program.)
  - Total GPA: 18.48/20

- **Shahid Ejei High School (National Organization for Development of Exceptional Talents)**, Isfahan, Iran. — Sep. 2006 to Aug. 2010
  - High School Diploma in Mathematics and Physics

AWARDS AND HONORS

- Department of Electrical Engineering Teaching Assistant Award, Princeton University (2019)
- Anthony Ephremides Fellowship in Electrical Engineering, Princeton University (2016)
- Iranian Mathematical Olympiad Bronze Medal (2009)
- Winner of the *Tournament of Towns*: International mathematical contest certified by the Russian Academy of Sciences (2009)
- Membership of the Iranian National Elite Foundation (2009-present)

PUBLICATIONS

1. **Asadi, A. R.** & Abbe, E. (2020). A Self-similarity Approach to Neural Network Learning (In Preparation)
2. **Asadi, A. R.**, Abbe, E. & Verdú, S. (2020). Information-Theoretic Chaining Techniques. (In Preparation).
3. **Asadi, A. R.** & Abbe, E. (2020). Maximum Multiscale Entropy and Neural Network Regularization. *arXiv preprint arXiv:2006.14614* (Submitted).
4. **Asadi, A. R.** & Abbe, E. (2020). Chaining Meets Chain Rule: Multilevel Entropic Regularization and Training of Neural Networks. *Journal of Machine Learning Research*, 21(139), 1-32.
5. **Asadi, A. R.**, Abbe, E., & Verdú, S. (2018). Chaining Mutual Information and Tightening Generalization Bounds. *Advances in Neural Information Processing Systems (NeurIPS) (pp. 7245-7254)*
6. **Asadi, A. R.** , Abbe, E., & Verdú, S. (2017). Compressing data on graphs with clusters. *IEEE International Symposium on Information Theory (ISIT) 2017 (pp. 1583-1587)*
7. Asadi, M. **Asadi, A. R.** (2014) "On the Failure Probability of Used Coherent Systems". *Communications in Statistics, Theory and Methods*, Vol. 43, pp. 2468-2475.
8. **Asadi, A. R.** (2013), Problem 96.J with solution, *The Mathematical Gazette*, Vol. 97, No. 539, pp. 345-346, United Kingdom. (Available at https://www.jstor.org/stable/24496830.)

TALKS

- Microsoft Research AI, Redmond, Washington, Sep. 2019
- Institute for Advanced Study, Princeton, New Jersey, Oct. 2019
  (Available at https://youtu.be/YdYXpaE3Tm0)
- Department of Engineering, University of Cambridge, UK, Mar. 2020
- Laboratoire de Physique, Ecole Normale Supérieure, Paris, France, May 2020
- Center for Data Science, New York University, June 2020

RESEARCH INTERNSHIPS AND VISITS

- **Institute of Network Coding** Chinese University of Hong Kong, Hong Kong, Summer 2014
  - Advisor: Professor Raymond Yeung
  - Title: Some Schemes for File Dissemination in Networks Employing Linear Network Coding
- **Microsoft Research AI** Redmond, Washington state, USA, Sep. 2019
  - Host: Professor Sebastien Bubeck

TEACHING ASSISTANTSHIPS

- Princeton University
  - Transmission and Compression of Information (ELE\APC 486), Spring 2017-2018
    - Instructor: Professor Emmanuel Abbe
  - Probability in High Dimension (ORF\APC 550), Fall 2018-2019
    - Instructor: Professor Ramon van Handel

GRADUATE COURSES (Princeton University)

Course Title	Instructor(s)	Grade
Coding Theory and Random Graphs	Emmanuel Abbe	A^+
Information Theory	Sergio Verdú	A^+
Theory of Detection and Estimation	Paul Cuff	A
Theory of Algorithms	Robert Tarjan	A
Theoretical Machine Learning	Elad Hazan	A
Lossless Data Compression	Sergio Verdú	A^+
Random Graphs and Networks	Emmanuel Abbe	A
Probability Theory	Ovidiu Calin	A
Probability in High Dimension	Ramon van Handel	A
Sparsity, Structure and Inference	Yuxin Chen	A
Information Theory and Machine Learning (Grad Seminar)	Emmanuel Abbe	P
Random Processes in Information Systems	Sergio Verdú	A^-
Theory of Detection and Estimation	Sergio Verdú	AUD
New Directions in Theoretical Machine Learning	Sanjeev Arora	AUD
The Probabilistic Method	Noga Alon	AUD
Introduction to Statistical Mechanics	Salvatore Torquato & Roberto Car	AUD

ONLINE COURSES (Coursera)

Course Title	Instructor(s)	Institution	Grade
First Course in Python	Charles Severance	University of Michigan	P
Python Data Structures	Charles Severance	University of Michigan	(in progress)

SCHOOLS

- East Asian School of Information Theory, Hong Kong, July 7-11, 2014
- North American School of Information Theory, Durham, NC, June 21-23, 2016
- North American School of Information Theory, College Station, TX, May 20-23, 2018
- North American School of Information Theory, Boston, MA, July 2-5, 2019

PROFESSIONAL SERVICES

- Neural Information Processing Systems (NeurIPS) Conference 2020 (Reviewer)
- Conference on Learning Theory (COLT) 2020 (Reviewer)
- IEEE International Symposium on Information Theory (ISIT) 2020 (Reviewer)
- IEEE Journal on Selected Areas in Information Theory (Reviewer)
- Conference on Information Sciences and Systems (CISS) 2020 (Technical Program Comittee)
- Neural Information Processing Systems (NeurIPS) Conference 2019 (Reviewer)
- IEEE Information Theory Workshop 2019 (Reviewer)
- IEEE Transactions on Information Theory (Reviewer)
- IEEE International Symposium on Information Theory (ISIT) 2018 (Reviewer)
- Conference on Information Sciences and Systems (CISS) 2018 (Reviewer)
- IEEE International Symposium on Information Theory (ISIT) 2016 (Reviewer)

PROGRAMMING LANGUAGES

- MATLAB
- C++
- Python and Keras
- LaTeX