Amir Asiaee_{Taheri}

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Education

2007 **B.S. in Computer Engineering - Software**, *University of Tehran*, Tehran, Iran

2010 **M.S. in Artificial Intelligence and Robotics**, *University of Tehran*, Tehran, Iran
- Thesis Topic: *Studying the Effect of Structure on Spreading Process in Complex Networks*
- Adviser: Professor Masoud Asadpour

2017 **Ph.D. in Computer Science**, *University of Minnesota*, Minneapolis, MN, USA
- Thesis Topic: *High Dimensional Learning with Structure Inducing Constraints and Regularizers*
- Adviser: Professor Arindam Banerjee

2021 **Postdoctoral Fellow**, *Mathematical Biosciences Institute* and *Department of Biomedical Informatics*, The Ohio State University, Columbus, OH, USA
- Mentors: Professors Kevin R. Coombes, Amanda E. Toland, Sebastian Kurtek, Tony Nance.

Academic Appointments

2021–present **Assistant Professor**, *Department of Biostatistics* and *Department of Biomedical Informatics*, Vanderbilt University Medical Center, Nashville, TN, USA

Professional Activities

Intramural

Committees

2021–2024 Member of Organizing Committee, *Summer Internship Program for Underrepresented Undergraduates*, Vanderbilt University Medical Center

2023–present Member of Admissions Committee, *Biostatistics Graduate Program*, Vanderbilt University

Student Advising

2021-2023 Project Advisor, *Yuting Mei*, (Master's student), Data Science, Vanderbilt University

2021-2023 Project Advisor, *Chiara Di Gravio*, (Ph.D. student), Biostatistics, Vanderbilt University

2022-2023 Thesis Advisor, *Jared Strauch*, (Master's student), Biostatistics, Vanderbilt University

2022-2023 Thesis Advisor, *Elisa Yazdani*, (Master's student), Biostatistics, Vanderbilt University

2021-2023 Thesis Co-Advisor, *Dora Obodo*, (Ph.D. student), Quantitative & Chemical Biology, Vanderbilt University

2023-present Project Advisor, *Hao Wang*, (Ph.D. student), Biostatistics, Vanderbilt University

Mentoring

2019 Undergraduate Research Mentor (**2** students), REU Program, The Ohio State University

2020 Undergraduate Research Mentor (**1** student), Herchel Smith-Harvard Undergraduate Science Research Program, The Ohio State University

2022 Undergraduate Research Mentor (**2** students), Summer Internship Program for Underrepresented Undergraduates, Vanderbilt University Medical Center

2023 Undergraduate Research Mentor (**2** students), Summer Internship Program for Underrepresented Undergraduates, Vanderbilt University Medical Center

2023-present	Postdoctoral Researcher Mentor, *Leila Azinfar*, R00 HG011367-02 Project, Vanderbilt University Medical Center
2024	Undergraduate Research Mentor (**1** student), Summer Internship Program for Underrepresented Undergraduates, Vanderbilt University Medical Center

Extramural

Session Organizer

2022	Vanderbilt Biostatistics Seminar Series
2022	CMStatistics2022 session on "Causality and Machine Learning"

Reviewer

2019–present	BMC Bioinformatics, Journal
2020–present	BMC Genomics, Journal
2021–present	PLOS Computational Biology, Journal
2022–present	PLOS Genetics, Journal
2023–present	Biometrics, Journal
2025–present	Nature Communication, Journal

Others

Professional Development

2010	Preparing Future Faculty Practicum Course, University of Minnesota
2017-2021	Professional Development Seminars, Mathematical Biosciences Institute, The Ohio State University
2023-present	The Geoffrey Fleming Academy for Excellence in Education Mentorship Program (The Fleming Society), Vanderbilt University Medical Center

Panels

2018	Panelist at *Career Path Panel* of Summer REU Program: Mathematical Biology Bootcamp, Mathematical Bioscience Institute, The Ohio State University
2018	Curriculum development for *Machine Learning for Bioinformatics* course, Department of Biomedical Informatics, The Ohio State University
2019	Judge at the *Edward F. Hayes Forum*, The Ohio State University
2019	Panelist at *Career Path Panel* of Summer REU Program: Mathematical Biology Bootcamp, Mathematical Bioscience Institute, The Ohio State University
2023	Panelist at *Winner Panel* of Bias Detection Tools for Clinical Decision-Making Challenge, NIH's NCAT
2024	Panelist at *AI Discovery and Research Panel* of the launch event of AI Discovery & Vigilance to Accelerate Innovation & Clinical Excellence (ADVANCE) Center, Department of Biomedical Informatics, Vanderbilt University Medical Center

Workshop & Conference Participation

2011 Oct.	IMA Workshop on Large Graphs: Modeling, Algorithms, and Applications, Minneapolis, MN
2012 Mar.	IMA Workshop on Machine Learning: Theory and Computation, Minneapolis, MN
2012 Oct.	21st Conference on Information and Knowledge Management, Maui, HI
2015 Feb.	IMA Workshop on Convexity and Optimization: Theory and Applications, Minneapolis, MN
2015 Apr.	Analytic Tools in Probability and Applications, Minneapolis, MN
2015 Apr.	IMA Workshop on Information Theory and Concentration Phenomena, Minneapolis, MN
2015 May.	IMA Workshop on Graphical Models, Statistical Inference, and Alg., Minneapolis, MN
2015 Jul.	31st Conference on Uncertainty in Artificial Intelligence, Amsterdam, Netherlands

2018 May.	Stanford Conference on Big Data in Precision Health, Stanford, CA
2018 Aug.	34th Conference on Uncertainty in Artificial Intelligence, Monterey, CA
2018 Jul.	CBMS Conference on Elastic Functional and Shape Data Analysis (EFSDA), Columbus, OH
2018 Oct.	Nature Conference on Big Data and Cancer Precision Medicine, Boston, MA
2018 Oct.	MBI Workshop on Math and the Microbiome, Columbus, OH
2019 Jun.	MBI Workshop on Bayesian Causal Inference, Columbus, OH
2019 Jun.	36th International Conference on Machine Learning, Long Beach, CA
2019 Jun.	Computational Biology Workshop at ICML, Long Beach, CA
2019 Jun.	Adaptive & Multitask Learning: Algorithms & Sys. Workshop at ICML, Long Beach, CA
2019 Nov.	MBI Workshop on Evolutionary Dynamics in Cancer, Columbus, OH
2020 Jun.	37th International Conference on Machine Learning, Virtual
2020 Jun.	Computational Biology Workshop at ICML, Virtual
2020 Oct.	American Society of Human Genetics, Virtual
2020 Dec.	34th Conference on Neural Information Processing Systems, Virtual
2021 Mar.	Network Biology, Cold Spring Harbor Laboratory, Virtual
2021 Apr.	24th International Conference on Artificial Intelligence and Statistics, Virtual
2021 Apr.	Probabilistic Modeling In Genomics, Cold Spring Harbor Laboratory, Virtual
2021 Apr.	American Association for Cancer Research Annual Meeting, Virtual
2021 Jul.	26th Summer Institute in Statistical Genetics, Department of Biostatistics, University of Washington, Virtual
2021 Jul.	38th International Conference on Machine Learning, Virtual
2021 Jul.	37th Conference on Uncertainty in Artificial Intelligence, Virtual
2021 Dec.	35th Conference on Neural Information Processing Systems, Virtual
2022 Jul.	27th Summer Institute in Statistical Genetics, Department of Biostatistics, University of Washington, Virtual
2022 Dec.	36th Conference on Neural Information Processing Systems, Virtual
2022 Dec.	15th International Conference on Computational and Methodological Statistics, Virtual
2023 Mar.	Network Biology, Cold Spring Harbor Laboratory, Virtual
2023 Mar.	Probabilistic Modeling in Genomics, Cold Spring Harbor Laboratory, Virtual
2023 Mar.	Eastern North American Region (ENAR) Meeting, Nashville, TN
2023 Apr.	Systems Immunology, Cold Spring Harbor Laboratory, Virtual
2023 Dec.	37th Conference on Neural Information Processing Systems, Virtual

Teaching Experience

The Ohio State University

2018	Machine Learning for Bioinformatics	*Co-teaching at the Biomedical Informatics Department*
2019	Artificial Intelligence II	*Teaching at the Computer Science & Engineering Department*
2020	Artificial Intelligence II	*Teaching at the Computer Science & Engineering Department*

Vanderbilt University

2024-2025	BIOS 7362: Advanced Statistical Inference	*Teaching at the Biostatistics Department*

Research Program

2020	**K99 HG011367-01 (PI: Asiaee)**, *Causal Effect Estimation of Regulatory Molecules*, NHGRI, $100k 08/20/2020 - 07/31/2021

Publications and Presentations

Peer-reviewed Articles

Amir Asiaee T., Mariano Tepper, Arindam Banerjee, and Guillermo Sapiro. If you are happy and you know it... tweet. In *21st ACM international conference on Information and knowledge management (CIKM)*, pages 1602–1606. ACM, 2012.

Amir Asiaee T., Mohammad Afshar, and Masoud Asadpour. Influence maximization for informed agents in collective behavior. In *Distributed Autonomous Robotic Systems*, pages 389–402. Springer, 2013.

Golshan Golnari*, **Amir Asiaee T.***, Arindam Banerjee, and Zhi-Li Zhang. Revisiting non-progressive influence models: Scalable influence maximization in social networks. In *31st Conference on Uncertainty in Artificial Intelligence (UAI)*, pages 316–325, 2015 (*Equal contribution).

Amir Asiaee T., Soumyadeep Chaterjee, and Arindam Banerjee. High dimensional structured estimation with noisy designs. In *16th SIAM International Conference on Data Mining (SDM)*, pages 801–809. SIAM, 2016.

Amir Asiaee T., Hardik Goel, Shalini Ghosh, Vinod Yegneswaran, and Arindam Banerjee. Time series deinterleaving of dns traffic. In *1st Deep Learning and Security Workshop*, 2018.

Zachary B. Abrams, Mark Zucker, Min Wang, **Amir Asiaee Taheri**, Lynne V. Abruzzo, and Kevin R. Coombes. Thirty biologically interpretable clusters of transcription factors distinguish cancer type. *BMC Genomics*, 19(1):738, Oct 2018.

Min Ho* Cho, **Amir Asiaee***, and Sebastian Kurtek. Elastic statistical shape analysis of biological structures with case studies: A tutorial. *Bulletin of Mathematical Biology*, 81(7):2052–2073, 2019.

Amir Asiaee, Samet Oymak, Kevin R. Coombes, and Arindam Banerjee. Data enrichment: Multi-task learning in high dimension with theoretical guarantees. In *Adaptive and Multi-Task Learning Workshop at ICML*, 2019.

Amir Asiaee*, Zachary B. Abrams*, Samantha Nakayiza, Deepa Sampath, and Kevin R. Coombes. Explaining gene expression using twenty-one micrornas. *Journal of Computational Biology*, Forthcoming, 2020 (*Equal contribution).

Sadegh Akhundzadeh, Alireza Omidi, Zainab Maleki, Amanda E Toland, Kevin R Coombes, and **Amir Asiaee**. Learning cancer progression network from mutation allele frequencies. In *Computational Biology Workshop at ICML*, 2020.

Phillip B Nicol, Kevin R Coombes, Courtney Deaver, Oksana Chkrebtii, Subhadeep Paul, Amanda E Toland, and **Amir Asiaee**. Oncogenetic network estimation with disjunctive bayesian networks. *Computational and Systems Oncology*, 1(2):e1027, 2021.

Phillip B. Nicol, Dániel L. Barabási, Kevin R. Coombes, and **Amir Asiaee**. SITH: An R package for visualizing and analyzing a spatial model of intratumor heterogeneity. *Computational and Systems Oncology*, 2(2):e1033, 2022.

Amir Asiaee, Zachary B Abrams, Heather H Pua, and Kevin R Coombes. Transcriptome complexity disentangled: A regulatory molecules approach. *International Journal of Molecular Sciences*, 26(6):2510, 2025.

Submitted and Preprints

Amir Asiaee, Chiara Di Gravio, Yuting Mei, and Jared D Huling. Leveraging observational data for efficient cate estimation in randomized controlled trials. *arXiv preprint arXiv:2306.17478*, 2023.

Jared Strauch and **Amir Asiaee**. Improving drug sensitivity prediction and inference by multi-task learning. *bioRxiv*, pages 2024–05, 2024.

Dora Obodo and **Amir Asiaee**. Quantifying differential rhythmicity based on effect sizes with limorhyde2. *bioRxiv*, pages 2024–05, 2024.

Hongxu Zhu, **Amir Asiaee**, Leila Azinfar, Jun Li, Han Liang, Ehsan Irajizad, Kim-Anh Do, and James P Long. Auc-pr is a more informative metric for assessing the biological relevance of in silico cellular perturbation prediction models. *bioRxiv*, 2025.

Presentations

2018 Mar.   *Generalized High Dimensional Data Sharing with Application*, MBI Seminar, Columbus, OH, USA

2018 Oct.   *Inferring Mutations Order from Cross-sectional Cancer Data*, MBI Seminar, Columbus, OH, USA

2019 Nov.   *Disjunctive Bayesian Network Infers Cancer Progression Network*, Evolutionary Dynamics in Cancer Workshop, MBI, Columbus, OH, USA

2019 Nov.   *Searching for Effective Combination Cancer Therapy Using Single Doses*, MBI Seminar, Columbus, OH, USA

2020 Feb.   *Disjunctive Bayesian Network Infers Cancer Progression Network*, Department of Biostatistics, Vanderbilt University, Nashville, TN, USA

2021 Oct.   *Whole Transcriptome Prediction from Regulatory Molecules*, Bioinformatics Working Group, Department of Biostatistics, Vanderbilt University, Virtual

2022 Feb.   *Identification and Comparison of Genes Differentially Regulated by Transcription Factors and MicroRNAs*, Department of Biostatistics, University of Louisville, Virtual

2022 Dec.   *Methods to improve the efficiency of RCTs using observational studies*, Invited Session (Combining Clinical Trials and Observational Study Data) at International Conference on Computational and Methodological Statistics, Virtual

2024 Jun.   *Leveraging Observational Data for Efficient CATE Estimation in Randomized Controlled Trials*, Invited Session (Advancing Clinical Trial Analysis) at International Chinese Statistical Association, Nashville, TN, USA

Abstracts and Posters

2012 Oct.   *If You are Happy and You Know It... Tweet*, 21st Conference on Information and Knowledge Management, Maui, HI

2015 Jul.   *Revisiting Non-progressive Influence Models: Scalable Influence Maximization in Social Networks*, 31st Conference on Uncertainty in Artificial Intelligence, Amsterdam, Netherlands

2018 May.   *Precision Cancer Treatment with High Dimensional Data Sharing Model*, Stanford Conference on Big Data in Precision Health, Stanford, CA

2018 Oct.   *Precision Cancer Treatment with High Dimensional Data Enrichment*, Nature Conference on Big Data and Cancer Precision Medicine, Boston, MA

2019 Jun.   *Explaining Gene Expression Using Twenty-One MicroRNAs*, Computational Biology Workshop at ICML, Long Beach, CA

2019 Jun.   *Data Enrichment: Multi-task Learning in High Dimension with Theoretical Guarantees*, Adaptive and Multi-Task Learning Workshop at ICML, Long Beach, CA

2020 Jun.   *Learning Cancer Progression Network from Mutation Allele Frequencies*, Computational Biology Workshop at ICML, Virtual

2021 Apr.   *Identification and Comparison of Genes Differentially Regulated by Transcription Factors and MicroRNAs*, NHGRI Research Training and Career Development Annual Meeting, Virtual