Amin Hosseiny Marani

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EDUCATION

Lehigh University, Bethlehem, PA *August 2018 - Present*
PhD, Computer Science GPA: 3.71/4
Relevant Coursework: Machine Learning, NLP, Social Computing, Data Mining, Advanced Programming

Iran University of Science and Technology, Tehran, Iran *2011 - 2014*
Master of Computer Engineering GPA: 15.13/20
Relevant Coursework: Machine learning, Distributed AI, Neural Networks, Pattern Recognition

Shahid Chamran University, Ahvaz, Iran *2007 - 2011*
Bachelor of Computer Engineering GPA: 14.53/20 (Top 5%)

PUBLICATION

Amin Hosseiny Marani, Urlike Schnaithmann, Youngseo Son, Manas Paldhe, Arushi Raghuvanshi. 2024. Excuse Me Can You Change That, Please? A Graph-aware Language Transformer for Dialogue Act Prediction in Call Automation Tasks. *Accepted for publication* In Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (NAACL 2024).

Amin Hosseiny Marani and Eric P. S. Baumer. 2023. A Review of Stability in Topic Modeling: Metrics for Assessing and Techniques for Improving Stability. ACM Computing Surveys (CSUR).

Allison Mickel, Adam Heidebrink-Bruno, **Amin Hosseiny Marani**, Isabel Barone, Olivia Lee, and Eric P.S. Baumer. 2023. The Cultural Production of Everyday Ethics in Two University STEM Labs. In Bulletin of Science, Technology Society.

Amin Hosseiny Marani, Joshua Levine, and Eric P. S. Baumer. 2022. One Rating to Rule Them All? Evidence of Multidimensionality in Human Assessment of Topic Labeling Quality. In Proceedings of the 31st ACM International Conference on Information and Knowledge Management (CIKM 22), October 17–21, 2022, Atlanta, GA, USA. ACM, New York, NY, USA, 12 pages.

Baumer, E.P.S. and **Hosseiny Marani, A.** (2020). Bias as a Distinct Factor in Human Ratings of Machine Labeling. in Human-Centered Approach to Fair Responsible AI at ACM Conference on Human Factors in Computing Systems (CHI), (Honolulu, HI).

EXPERIENCE

Infinitus Systems San Francisco, CA
NLP Researcher (internship) *June 2023 - September 2023*

- Designed a **Graph Neural Network** empowered by **LLMs** (i.e., GPT) to predict next action for call automation over-performing the current system in successful call rate by 30% (published in NAACL 2024).
- Developed a data preparation pipeline and automated **human-data annotation** for human-AI dialogue turns.
- Co-designed and managed analyzing **human centered evaluation** to measure quality of **LLM** based call automation applications (novel assessment approach).
- Designed a new **multi-modal NLP-speech** model to detect conversation break down using sentiment and language signals.

Dana-Farber Cancer Institue | Harvard Medical School Boston, MA
NLP Data Scientist (internship) *April 2021 - January 2022*

- Designed a new clinical text summarization pipeline using a combination of database techniques, traditional machine learning methods, and **deep learning transformers (e.g., BERT and BioBERT)**.
- Designed a novel **Graph Neural Networks (GNN)** model to improve search relevancy across different departments and terminology in health document retrieval.

DESIGN, ALGORITHMS, AND SOCIETY (DAS) LAB Lehigh University, Bethelehem, PA
Graduate Research Assistant *2018-present*

- Designed a **Knowledge Graph** model generated using **BERT-based classifier** for a movie recommendation system based on movie descriptions, genres, and actors.
- Designed a **Generative Transformer** to generate the derivatives of mathematical equations.
- Developed a **Generative AI** and fine-tunned using **LoRA** to intervene toxic conversations using **Deep Learning** multi-signal features.

- Designed a new labeling machine learning based evaluation model by combining a novel trained **Graph Neural Network** on article-frame features and BERT features of articles.
- Designed a model to predict when users churn from a weight control application by monitoring users' activity using **statistical modeling**.
- Managed a study to capture race bias in machine learning evaluation by collecting human data through surveys, exploring features, and employing **statistical techniques** (e.g., Logistic Regression and ANOVA).
- Designed a new **Deep Learning topic modeling technique** by combining word features and word type dependencies.
- Designed a **multi-modal deep learning** (photo-text) approach for machine labeling evaluation.
- Co-designed a **mixed method research – qualitative and quantitative** – study and analyzed the data to investigate the human perception of ethics in work environment.

Shahid Chamran University Ahvaz, Iran
Teacher And Advisor *2015-2017*

- **Taught** 5 courses (Advanced Programming and Algorithms) and **advised** 5 undergraduate students.

Complex Systems Lab Iran University of Science and Technology, Tehran, Iran
Graduate Research Assistant *2011-2014*

- Developed a Holonic Multi-Agent **recommender system** using **Map-Reduce** and **Sarl-Java**.
- Designed a novel chaotic Boltzmann **neural network** to speed up the convergence.

SKILLS

Programming Languages: (Proficient)R, Python, Matlab; (Familiar) JavaScript, Java, C, C++, SQL
Frameworks and Tools: PyTorch, HuggingFace, ggplot2, GCP, Spacy, Sklearn, NLTK, Gensim

SERVICES AND ACTIVITIES

Reviewer NeuroComputing Journal
Reviewer of an Elsevier journal in the field of neural networks and machine learning *2017-present*

Reviewer SAGE Open
Reviewer of SAGE Journals in the field of topic modeling and social science *2021-present*

Reviewer ACM CHI
Reviewer of ACM CHI conference in Human-Computer-interaction and NLP applications *2021-present*

Reviewer ACM CSCW
Reviewer of ACM Conference On Computer-Supported Cooperative Work And Social Computing *2021-present*

CSE Department Representative Lehigh University, Bethlehem, PA
the Graduate Student Senate *2020-2023*

Member of Upsilon Pi Epsilon society 2021-present

President and Vice of the Iranian Students Association at Lehigh University (LUISA) 2021-2023

Secretary of Graduate Student Senate at Lehigh University 2022-2023

COMPETITIONS AND AWARDS

Lehigh University Graduate Life Leadership Award 2023

Lehigh University Graduate Engineering Leadership and Service Award 2023

SIGIR Student Grant 2022

One of four finalist teams in eBay 2021 University Machine Learning Competition 2021