

SEPEHR JANGHORBANI

CONTACT

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Google Scholar : [Sepehr Janghorbani](#)

EDUCATION

Rutgers University *2017 - 2023 (Expected)*
PhD Candidate - Computer Science (Advisor: Prof. Gerard De Melo) **GPA: 3.91/4.0**

Rutgers University *2017 - 2021*
Master of Science - Computer Science (Concentration: Machine Learning) **GPA: 3.91/4.0**

Sharif University of Technology *2011 - 2016*
Bachelor of Science - Computer Engineering

EXPERIENCE

Apple (Data Scientist Intern) *May 2021- Aug 2021*

- Designed a transformer-based natural language understanding model to automatically summarize, connect and resolve Apple Care's customer support issues, enhancing issue resolution efficiency.
- Designed and utilized machine learning methods to measure impact and efficiency metrics within and across organizations and product lines and identify business insights useful for decision-makers.
- Developed multiple natural language data-assets to evaluate our issue resolution models.

Dataminr (Research Intern) *Feb 2021- May 2021*

- Designed and implemented a prototype for self-supervised vision-language machine translation.

Disney Research (Research Intern) *May 2018- Aug 2018*

- Designed and developed a natural language understanding system for automated understanding of movie character descriptions and automatic code generation of virtual character based on that.
- Designed a hierarchical deep neural model with self attention for real-time dialogue topic modelling. This model was shown to significantly outperform state-of-the-art models.
- Developed a gold-standard natural language benchmark dataset to evaluate our proposed models.

Rutgers University Machine Learning Lab *May 2017- Present*

- Working on self-supervised deep generative models for Computer Vision and NLP.
- Designed a deep Variational model for large-scale self-supervised object tracking, video segmentation, video background separation and future-time prediction of natural scenes. Our model was shown to significantly outperform state-of-the-art models in scenes with up to 100 moving objects.
- Introduced a large-scale dataset and benchmarking framework to measure discriminatory biases baked into self-supervised vision-language models. We conduct extensive experiments to demonstrates the current extent of the bias present in several prominent vision-language models with regards to religion, national origin, sexual orientation and disability. We further propose a debiasing technique to mitigate such biases.

- Designed a machine learning model to identify causal factors of genetic diseases using Bayesian Inference. It also discovers genetic latent structure present in ethnically non-uniform populations.

PUBLICATIONS

[Multi-Modal Bias: Introducing a Framework for Stereotypical Bias Assessment beyond Gender and Race in VisionLanguage Models](#)

Sepehr Janghorbani, Gerard De Melo

European Chapter of the Association for Computational Linguistics (EACL) 2023

[SCALOR: Generative World Models with Scalable Object Representations](#) [\[Website\]](#)

Jindong Jiang *, Sepehr Janghorbani *, Gerard De Melo, Sungjin Ahn (* **Equal Contribution**)

International Conference on Learning Representations (ICLR) 2020

[Topic Spotting using Hierarchical Networks with Self Attention](#)

Pooja Chitkara, Ashutosh Modi, Pravalika Avvaru, Sepehr Janghorbani and Mubbasir Kapadia

North American Chapter of ACL (NAACL) 2019

[Domain Authoring Assistant for Intelligent Virtual Agents](#) [\[Demo\]](#)

Sepehr Janghorbani, Ashutosh Modi, Jakob Bauman and Mubbasir Kapadia

Autonomous Agents and Multi-Agent Systems (AAMAS) 2019

[Statistical Association Mapping of Population-Structured Genetic Data](#)

Amir Najafi *, Sepehr Janghorbani *, S.A. Motahari, Emad Fatemizadeh (* **Equal Contribution**)

IEEE Transactions on Computational Biology and Bioinformatics

HONORS & AWARDS

Awarded \$5,000 Fellowship for Excellence

2017

(Awarded based on credentials and the advisor's recommendation at the time of admission)

Ranked 237th (among the top 0.1%) in the National University Entrance Exam

2011

(more than 300,000 participants across the nation.)

Member of National Organization for Development of Exceptional Talents 2004 - Present

TEACHING EXPERIENCE

Massive Data Mining and Deep learning, Artificial Intelligence, Computer Math and Science, Introduction to Algorithm Design, Discrete Structures, Programming Languages, Introduction to programming

REVIEW EXPERIENCE

ACL, EACL, EMNLP, AACL, LDK, WWW, IEEE Transactions on Circuits and Systems for Video Technology, IEEE Transactions on Image Processing, & Computational Intelligence Journal

TECHNICAL SKILLS

Programming Languages: Python, Java, C++, C, MATLAB, Prolog, Verilog

Machine Learning Tools : Tensorflow, Pytorch, Scikit-Learn, Pandas

Others : OpenCV, NLTK, Seaborn, Gensim, A/B testing, Statistics, SQL, Transformers