Mohammad Reza Taesiri

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CURRENT POSITION

University of Alberta, Edmonton, Alberta, Canada
- Post-Doctoral Fellow — Sep 2024 – Present
  - Focus: Foundation Models for Video Games

EDUCATION

University of Alberta, Edmonton, Alberta, Canada
- Ph.D. in Software Engineering and Intelligent Systems — Sep 2021 – Sep 2024
  - Thesis: Leveraging Foundation Models for Video Game Quality Assurance

Sharif University of Technology, Tehran, Tehran, Iran
- M.Sc. in Computer Software Engineering — Sep 2015 – Sep 2017

Amirkabir University of Technology, Tehran, Tehran, Iran
- B.Sc. in Pure Mathematics — Sep 2009 – Jun 2015

RESEARCH EXPERIENCE

La Forge, Ubisoft Montreal
- Research and Development Intern — Aug 2022 – Dec 2022
  - Supervisor: Dr. Sarra Habchi
  - Focus: Robustness of Foundation Models, Image and Video Retrieval

ASGAARD Lab, University of Alberta
- Graduate Research Assistant — Sep 2021 – Present
  - Supervisor: Prof. Cor-Paul Bezemer
  - Focus: Foundation Models for Video Games

Nguyen Lab, Auburn University
- Visiting Researcher — Mar 2021 – Present
  - Supervisor: Prof. Anh Totti Nguyen
  - Focus: Robust and Explainable Machine Learning

PUBLICATIONS

CONFERENCES

[1] Mohammad Reza Taesiri, and Cor-Paul Bezemer – "VideoGameBunny: Towards vision assistants for video games" in *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision 2025 (WACV 2025)* ***Oral Presentation***.

[2] Rahmanzadehgervi, Pooyan, Logan Bolton, Mohammad Reza Taesiri, and Anh Totti Nguyen – "Vision language models are blind" in *Proceedings of the Asian Conference on Computer Vision 2024 (ACCV 2024)* ***Oral Presentation***.

[3] Mohammad Reza Taesiri, Tianjun Feng, Anh Nguyen and Cor-Paul Bezemer – "GlitchBench: Can large multimodal models detect video game glitches?" in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition 2024. (CVPR 2024)*

[4] Mohammad Reza Taesiri, Giang Nguyen, Sarra Habchi, Cor-Paul Bezemer, and Anh Nguyen – "ImageNet-Hard: The Hardest Images Remaining from a Study of the Power of Zoom and Spatial Biases in Image Classification" in *Thirty-Seventh Annual Conference on Neural Information Processing Systems (NeurIPS 2023)*

[5] Mohammad Reza Taesiri*, Giang Nguyen*, and Anh Nguyen (* Denotes Equal Contribution) – "Visual correspondence-based explanations improve AI robustness and human-AI team accuracy." in *Thirty-sixth Annual Conference on Neural Information Processing Systems (NeurIPS 2022)*

[6] Finlay Macklon, Mohammad Reza Taesiri, Markos Viggiato, Stefan Antoszko, Natalia Romanova, Dale Paas, and Cor-Paul Bezemer – "Automatically Detecting Visual Bugs in HTML5 <canvas> Games." in *International Conference on Automated Software Engineering (ASE 2022)*

[7] Mohammad Reza Taesiri, Finlay Macklon, and Cor-Paul Bezemer – "CLIP meets GamePhysics: Towards bug identification in gameplay videos using zero-shot transfer learning." in *The Mining Software Repositories conference (MSR 2022)*

JOURNALS

[1] Giang Nguyen, Valerie Chen, Mohammad Reza Taesiri, and Anh Totti Nguyen – "PCNN: Probable-Class Nearest-Neighbor Explanations Improve Fine-Grained Image Classification Accuracy for AIs and Humans" in *Transactions on Machine Learning Research (TMLR)*

[2] Mohammad Reza Taesiri, Finlay Macklon, Sarra Habchi, and Cor-Paul Bezemer – "Searching bug instances in gameplay video repositories" in *IEEE Transactions on Games (ToG 2024)*

[3] Mohammad Reza Taesiri, Moslem Habibi, and MohammadAmin Fazli – "A Video Game Testing Method Utilizing Deep Learning" in *Journal on Computer Science and Engineering (JCSE 2021)*

WORKSHOPS

[1] Giang Nguyen, Mohammad Reza Taesiri, Sunnie S. Y. Kim, and Anh Totti Nguyen – "Allowing humans to interactively guide machines where to look does not always improve a human-AI team's classification accuracy." in *The 3rd Explainable AI for Computer Vision (XAI4CV) Workshop (CVPR 2024)*

PREPRINTS

[1] Jonathan Roberts, Mohammad Reza Taesiri, and others – "ZeroBench: An Impossible Visual Benchmark for Contemporary Large Multimodal Models." in *Arxiv Preprint*

[2] Tin Nguyen, Logan Bolton, Mohammad Reza Taesiri, and Anh Totti Nguyen – "HoT: Highlighted Chain of Thought for Referencing Supportive Facts from Inputs." in *Arxiv Preprint*

[3] Mohammad Reza Taesiri, Finlay Macklon, Yihe Wang, Hengshuo Shen, and Cor-Paul Bezemer – "Large Language Models are Pretty Good Zero-Shot Video Game Bug Detectors." in *Arxiv Preprint*

[4] MohammadAmin Fazli*, Ali Owfi*, and Mohammad Reza Taesiri* (* Denotes Equal Contribution) – "A Data-Driven Analysis on Nft Auctions: Assessment, Opportunities and Fraudulent Activities." in *Arxiv Preprint*

AWARDS & SCHOLARSHIPS

- Alberta Innovates Graduate Student Scholarships program (GSS) 2024
- Alberta Graduate Excellence Scholarship (AGES) 2023
- Upper Bound Talent Bursary 2023
- NeurIPS Scholar Award 2022

- Graduate Research Assistant, University of Alberta 2021
- Ranked 10th, National entrance exam in Software Engineering, Iran 2015
- Ranked 11th, National entrance exam in Algorithms and Theory of Computation, Iran 2015

INVITED TALKS & ACTIVITIES

Foundation Models for Video Game Quality Assurance, 2024
Honours Seminar, University of Alberta, Edmonton, Canada
A Brief Tutorial on Large Language Models, 2023
ISAIC, University of Alberta, Edmonton, Canada
Zoom Is What You Need: An empirical study of the power of zoom and spatial biases in image classification, 2023
Samsung SAIT AI Lab (SAIL), Montreal, Québec, Canada

PROJECTS & DATASETS

GlitchBench, Hugging Face Datasets
- A benchmark to evaluate large multimodal models for the task of video game testing. Dec 2023

ImageNet-Hard, Hugging Face Datasets
- Introduced a challenging dataset to rigorously assess the robustness of diverse vision models. Apr 2023

Claude Reads ArXiv, Hugging Face Space
- Harnessing the power of the *Claude-v1.3-100k* to answer questions about academic papers. Apr 2023

Intelligent Image Captioner, Hugging Face Spaces
- Empowering ChatGPT with the ability to see and interpret images, using Detic. Dec 2022

CLIP Meets GamePhysics, Hugging Face Spaces
- Developed a CLIP-based video retrieval system for video games. Mar 2022

The GamePhysics Dataset, Hugging Face Datasets

- A dataset of video game bugs — Jan 2022

OTHER WORK EXPERIENCE

3-Dish, Karaj, Tehran, Iran

- Co-Founder — 2019 – 2021
  - Developed a unique culinary experience in the Metaverse, replicating popular dishes to create an authentic appearance.

Fanafzar Sharif Game Studio, Tehran, Tehran, Iran

- Summer Intern - Game Development — Jun 2014 – Sep 2014
  - Developed in-game level editors for mobile platforms, enhancing user experience and engagement.
  - Successfully created a proof of concept using the Unity game engine, showcasing the functionality and potential of the level editor.

TEACHING EXPERIENCE

University of Alberta, Edmonton, Alberta, Canada

- Teaching Assistant — Sep 2023 – Present
  - Served as a teaching assistant for multiple courses.
  - ECE 447 - Data Analysis and Machine Learning for Engineers - Winter 2024
  - ECE 342 - Probability for Electrical and Computer Engineers - Winter 2024
  - ECE 325 - Object-Oriented Software Design - Fall 2023
  - ECE 321 - Software Requirements Engineering - Fall 2023

Sharif University of Technology, Tehran, Iran

- Teaching Assistant - Head — Jan 2016 – Jun 2016
  - Led a team of teaching assistants in the Discrete-Event Simulation course.
  - Collaborated with the professor to develop lesson plans, assess students' performance

CERTIFICATES & ONLINE COURSES

- Deep Reinforcement Learning Nanodegree, Udacity — 2020
- Reinforcement Learning Specialization, Coursera, University of Alberta — 2020
- Computational Neuroscience, Coursera, University of Washington — 2020
- Deep Learning Specialization, Coursera, DeepLearning.AI — 2018
- Image and video processing, Coursera, Duke University — 2014
- Heterogeneous Parallel Programming, Coursera, University of Illinois Urbana-Champaign — 2014
- Programming Languages, University of Washington — 2014

SKILLS

Machine Learning: PyTorch, Keras, JAX
Programming: Python, C#, Java, C/C++, Swift, Objective-C, Scheme, Racket, ML, CUDA
Other Technologies: Docker and Kubernetes, NodeJS, MongoDB, Neo4j, Wolfram Mathematica
Game Engines: Unity, Unreal Engine

HOBBIES

Photogrammetry, Digital Photography, Hiking

REFERENCES

- **Dr. Cor-Paul Bezemer**
  Associate Professor, University of Alberta
  bezemer@ualberta.ca
- **Dr. Anh Totti Nguyen**
  Associate Professor, Auburn University
  anhnguyen@auburn.edu
- **Dr. Marek Reformat**
  Professor, University of Alberta
  reformat@ualberta.ca

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