

Yasaman Etesam

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Research/Work Experience

Research Assistant, ROSIE Lab, Simon Fraser University

Fall 2019 – Spring 2025

- Utilized state-of-the-art NLP and computer vision models for environmental and emotional awareness in AI agents.
- Gained hands-on experience in large language models (LLMs) and multimodal LLMs, including fine-tuning (using LoRA), chain-of-thought reasoning, and prompt engineering.
- Evaluated various LLMs (e.g., GPT, Mistral, LLaMA) and multimodal LLMs (e.g., GPT-4 Vision, LLaVA) to analyze reasoning capabilities.
- Trained and fine-tuned various deep learning models for different tasks like generation, multi-class and multi-label classification, and detection.
- Investigated different attention modules to enhance the capabilities of deep learning models.
- Explored various techniques for handling visual data, including 2D, 3D, and language data.

AI Researcher Intern, Autodesk Research

Summer 2024

- Designed and trained a Transformer based model using our first-of-its-kind, synthetically generated dataset to solve the gear train design task.
- Introduced a new loss function to optimize the design weights.

Deep Learning Researcher Intern, Zippin

Spring 2022

- Researched state-of-the-art methods for novel view generation.
- Addressed the limitations of the NeRF model by combining Direct Voxel Grid Optimization with NeRF-.

AI Researcher/Engineer Intern, LG AI Lab

Fall 2021

- Worked on Retrieval Question Answering with Retrieval-Augmented Generation (RAG) and developed a proof of concept for its use on LG catalogues.

Research Assistant, GrUVi Lab, Simon Fraser University

Fall 2017 – Summer 2019

- Proposed a regression method to reintegrate gradient pair approximations into the image in an image sequence.
- Applied this method to extract intrinsic images and convert night-time images to day-time images

Computer Vision Engineer Intern, Eyexpo Technology Corp.

Fall 2018

- Researched various stitching mechanisms to create panorama images from GoPro photos.

Research Assistant, Machine Learning and Robotics Group, University of Tehran

Spring 2016 – Spring 2017

- Compared various multi-subspace recovery methods, such as PCA, Robust-PCA, RANSAC, and the Angular Gaussian method, based on classification error.

Education

Simon Fraser University, Burnaby, Canada

Fall 2019 – Spring 2025

PhD in Computer Science. Supervisor: Angelica Lim

Simon Fraser University, Burnaby, Canada

Fall 2017 – Summer 2019

MSc in Computer Science. Supervisor: Mark S. Drew

University of Tehran, Tehran, Iran

Fall 2012 – Summer 2017

BSc in Electrical Engineering.

Publications

- Etesam, Y.,** Cheong, H., Ataei, M., Jayaraman, P.K., Deep Generative Model for Mechanical System Configuration Design. **AAAI 2025**
- Etesam, Y.,** Cheong, H., Ataei, M., Jayaraman, P.K., Integrating Deep Generative Models with Search Techniques to Resolve Mechanical Configuration Design Problems. **US Patent 2025.**
- Etesam, Y.,** Cheong, H., Ataei, M., Jayaraman, P.K., Training Transformer Models to Generate Mechanical Assemblies **US Patent 2025.**
- Etesam, Y.,** Yalcin, O.N., Zhang, C., Lim, A., Emotional Theory of Mind: Bridging Fast Visual Processing with Slow Linguistic Reasoning. **ACII 2024.**
- Etesam, Y.,** Yalcin, O.N., Zhang, C., Lim, A., Contextual Emotion Recognition using Large Vision Language Models. **IROS 2024.**
- Etesam, Y.,** Yalcin, O.N., Zhang, C., Lim, A., Emotional Theory of Mind: Assessing Vision and Language Models' Capabilities and Limitations. **RSS 2023 workshop.**
- *Yang, V., *Srivastava, A., **Etesam, Y.,** Zhang, C., Lim, A., Contextual Emotion Estimation from Image Captions. **ACII 2023.**
- Etesam, Y.,** Kochiev, L., Chang, A.X., 3DVQA: Visual Question Answering for 3D Environments. **CRV 2022.**
- Finlayson, G.D., Drew, M.S., **Etesam, Y.,** Colour Image Gradient Regression Reintegration. **CIC 2018.**