

# Mohsen Ghasemizade

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## Education

### Doctor of Philosophy in Computer Science

June 2024 - Present

University of Vermont, Burlington, VT

MassMutual Research Fellow

Chernoff Fellowship

- **Research:** GDPR Compliance, Differential Privacy, Privacy Policy Analysis, and Privacy-Preserving Applications of LLMs.

### Master of Science in Computer Science

March 2024

University of Vermont, Burlington, VT

- **Thesis:** A Computational Journey Through Conspiracy Theories: A Genealogical Approach

### Bachelor of Science in Electrical Engineering

May 2020

Shiraz University, Iran

## Technical Skills

**Security and Privacy:** Differential Privacy, Cryptography, Threat Analysis, Blockchains, MPC Protocols

**LLMs & NLP:** LLaMA, GPT, Gemini, BERT, ROBERTa, Hugging Face, Text Classification

**Machine Learning & AI:** PyTorch, TensorFlow, UMAP, Deep Learning, Clustering

**Cloud & Databases:** AWS, Azure, GCP, MySQL

**Tools:** Git, Tableau, Selenium, BeautifulSoup, NetworkX

## Professional Experience

### R&D Intern — [MassMutual, Springfield, MA](#)

01/2026 - Present

- Analyzing longitudinal health data from the MassMutual Living Well application to identify patterns associated with client longevity and wellness outcomes, on a SQL based data lake.
- Applying differential privacy techniques to enable secure data sharing with external researchers while preserving individual privacy.

### Board Member — [Local Motion, Burlington, VT](#)

01/2026 - Present

- Board policy lead advancing safe-streets and active-transportation priorities statewide.
- Committee member guiding advocacy initiatives and complete-streets support.

### Graduate Research Assistant — [The Computational Ethics Lab](#)

01/2022 - Present

- **Aim High. Stay Private: Differentially Private Synthetic Data Enables Public Release of Behavioral Health Information with High Utility - [Published in JAMIA Open](#)**
  - Anonymizing Health Data with Differential Privacy on the LEMURS Dataset
  - Implemented a differentially private algorithm to anonymize weekly health data from Oura rings and surveys, collected from over 600 college students.
  - Designed to protect individual privacy while publishing insights, ensuring robust anonymization for sensitive health datasets in academic research.
- **Developing a Hierarchical Model for Unraveling Conspiracy Theories - [Published in EPJ Data Science Journal](#)**
  - Developed a Binary Text Classifier using BERT and ROBERTa, achieving an F1 score of 87%.
  - This classifier excels at sentiment identification, accurately discerning the underlying sentiments in texts related to conspiracy theories.
  - Implemented web scraping techniques using BeautifulSoup and Selenium for data collection.
- **Making Local Government Contracts Legible: A Computational Pipeline for Classifying and**

## Mapping Intergovernmental Service Agreements - Preprint

- Built an end-to-end pipeline combining neural OCR, LLM-based classification, and network modeling to classify 21,000+ Iowa 28E intergovernmental agreements, validated against a hand-labeled sample at 96% extraction accuracy.
  - Achieved 82% weighted F1 on contract classification using LLM-derived embeddings (GPT, Gemini, LLaMA) with lightweight ML models, benchmarked against few-shot chain-of-thought prompting
  - Constructed and analyzed a statewide financial network of service contracts using a hierarchical degree-corrected stochastic block model, uncovering a stratified buyer-seller structure across government types.
- **Privacy Policy Compliance Scoring System**
    - Developing a scoring system to evaluate tech companies' privacy policies for compliance with legislation from the 1980 OECD guidelines to GDPR and CCPA.
    - Utilizing a fine-tuned Llama model to assess policy language evolution and rank compliance.
  - **Hacker Detector with Honey Documents**
    - Developed Google documents filled with simulated hacking methods for distribution across paste sites.
    - Utilized Cutlly API, Google App Script, and a self-controlled domain to examine visitor metrics.

## Graduate Teaching Assistant — *University of Vermont* 01/2022 - 12/2024

- Co-instructed and constructed the undergraduate Python courses, focusing on best practices and industry trends.
- Mentoring over 150 students in lab assignments, leading to positive evaluations.

## Zoning Analyst — *Vermont Zoning Atlas* 05/2020 - 08/2023

- Participated in data entry and analysis of zoning rules across Chittenden County, improving the Vermont Zoning Atlas's accuracy and reliability for public use.

## Residential Faculty — *GIV Mathematical Institute* 07/2024 - 08/2024

- Guided talented high school students from Chittenden County, VT, in utilizing and integrating Python for solving mathematical problems.

## Certifications

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- AWS Cloud Technical Essentials (Coursera)
- Meta Database Engineer (Coursera)
- Generative AI with Large Language Models (Coursera)

## Selected Academic Projects

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- **Music Genre Classification (Machine Learning):** Utilized various ML algorithms for genre prediction.
- **Simulation of Distributed Cryptocurrency System (Secure Distributed Computation):** Simulated a blockchain environment for transaction security.
- **Cybersecurity Discourse Analysis (Data Science):** Analyzed social media (Twitter) data for ransomware trends.
- **Reputation and Non-Use of Tor Browser (Usable Security and Privacy):** Conducted a public perception survey on Tor Browser, revealing low awareness and notable reputation challenges impacting its adoption.