

# DELARAM RAJAEI

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## PROFILE OF SKILLS

- Skilled in machine learning libraries including NumPy, scikit-learn, Pandas, and TensorFlow (+4 years)
  - Complete tasks with careful attention to detail, ensuring precision in every aspect of the work
  - Robust research and problem-solving skills, capable of tackling intricate challenges
  - Proficient in clean coding practices to develop maintainable and scalable solutions
  - Strong planning skills, adept at organizing and prioritizing tasks to meet deadlines efficiently
  - Excellent team-work skills and a proactive team connector with a keen leadership aptitude
  - Proficient in leveraging RAG technology to enhance query accuracy and relevance
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## TECHNICAL SKILLS

- **Programming Languages:** Python, Java, C/C++
  - **Web Development:** JavaScript, NodeJS, TypeScript, HTML, CSS,
  - **Database Management:** MySQL, MongoDB
  - **Operating System:** Windows, Linux (Ubuntu)
  - **Languages:** English (IELTS 7), French (Beginner), Farsi (Native)
  - **Other:** Office tools (Excel, Word, PowerPoint), Google Suite, Docker, Kubernetes, Jira, Figma, Git
  - **Python Libraries:** XGBoost, scikit-learn, Pandas, Keras, TensorFlow, PyTorch, NumPy, Matplotlib
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## EDUCATION

### Master of Science Computer Science - AI Stream (GPA: 4/4)

May 2023 – Aug 2024

University of Windsor, Windsor, Ontario

**Selected Courses:** Natural Language Processing, Neural Network and Deep Learning, Statistical Learning

### Bachelor of Engineering in Computer Engineering (GPA: 3.68/4.00)

Sep 2018 – Apr 2023

Amirkabir University of Technology (AUT), Tehran, Iran

**Selected Courses:** Robotics, Data Mining, Data Structure, Algorithm Design, Computational Intelligence

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## PROFESSIONAL EXPERIENCE

### Research Assistant

May 2023 – Aug 2024

Dr. Hossein Fani's lab, University of Windsor, Windsor, Ontario

<https://github.com/fani-lab/RePair>

- Developed an open-source Python-based benchmark workflow and dataset collection tool aimed at enhancing search result relevance by refining users' queries without introducing semantic drift.
- Developed a query refinement technique using an unsupervised method, adhering to object-oriented programming principles, to generate a gold standard dataset that was evaluated using various metrics.
- Applied RAG fusion techniques to improve the retrieval system, boosting the relevancy of the generated answers by the LLM and increasing the accuracy of the retrieved document list from 20% to 50%.
- Trained a T5 model on gold standard datasets, achieving a 117% improvement in refined outputs.
- Improved query refinement across various dataset types and language families ranging from approximately 40% in best-case scenarios to around 10% in worst-case scenarios.
- Used Excel and Google Sheets to analyze and visualize large datasets.

### Graduate Assistant – System Programming

Sep 2023 – Aug 2024

University of Windsor, Windsor, Ontario

- Held office hours to support student questions, assessed assignments, and served as a lab instructor, requiring a strong understanding of Bash commands, proficiency in Unix and shell scripting, and knowledge of C/C++ for program writing, compilation, and execution.

## Junior Backend Developer

Jul 2021 – Dec 2021

Hengam Technology Development Co., Tehran, Iran

- Developed a sports application using TypeScript and Node.js, which stores individual personal records and provides recommended walking distances based on their location.
- Learned NodeJS and TypeScript through hands-on projects and training courses
- Gained proficiency in Docker containerization and familiar with Bitbucket pipelines for CI/CD.
- Interned as a Software Engineer and Backend Developer before transitioning to a Junior Developer role.

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## PUBLICATIONS

- Rajaei et al., [Enhancing RAG's Retrieval via Query Backtranslations](#), WISE, 2024.
- Rajaei et al., [No Query Left Behind: Query Refinement via Language Backtranslation](#), CIKM, 2024.
- Moasses, Rajaei et al., [vivafemme: Mitigating Gender Bias in Neural Team Recommendation via Female-Advocate Loss Regularization](#), BIAS-SIGIR, 2024.

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## ACADEMIC PROJECTS

### Bachelor's Thesis: Pedestrian and Vehicle Detection in Autonomous Cars

Jan 2023 - Apr 2023

- Implemented the YOLO 8 model to recognize and classify vehicles and pedestrians crossing street resulting in decreased Root Mean Square Error (RMSE) and Average Percentage Error (MAPE) and significant improvement in F1-score.
- Tech Stack: OpenCV, PyTorch, and Matplotlib

### Diabetes Diagnosis

Jun 2022 - Aug 2022

<https://github.com/DelaramRajaei/Data-Mining-FinalProject>

- Developed a classification method to find symptoms of diabetes for given data including four stages: preprocessing, building classification model, tuning hyper-parameters, evaluating and plotting
- Tech Stack: Python, Pandas, Numpy, Matplotlib, Sklearn, XGBoost Classifier, GridSearchCV

### Snail Jumper Master

Mar 2022 - Jun 2022

<https://github.com/DelaramRajaei/SnailJumper-master>

- Created a game designed to be playable manually or autonomously through a Neuro Evolution algorithm. The game features an animal navigating obstacles to accumulate points.
- Tech Stack: Python, Numpy, Matplotlib

### ButterBot Navigator

Apr 2021 - Jun 2021

<https://github.com/DelaramRajaei/IDS>

- Programmed a robot using iterative deepening depth-first search (IDS) to optimally deliver butter slices to people around a table, navigating obstacles with minimal moves.
- Tech Stack: Python, Numpy, Matplotlib

### Sentiment Analysis

Sep 2020 - Dec 2020

<https://github.com/hedzd/sentiment-analysis>

- Designed and implemented bigram and unigram algorithms and Backoff model to identify whether a comment is positive or negative.
- Tech Stack: Python, Numpy, Matplotlib

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## HONOURS & AWARDS

- University of Windsor's School of Computer Science departmental scholarship (2021) (\$4000)
- University of Windsor master's international entrance scholarship (2021) (\$7500)
- Top 1% among 200k participants for the Iranian University Entrance Nationwide Exam (2018)

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## EXTRACURRICULAR ACTIVITIES & WORKSHOPS

- Windsor-Essex GDG DevFest, October 2023
- The Complete NodeJS Developer Course, Udemy, July 2021
- Dive Into Deep Learning and Adventures with AI, Amirkabir AI Summer Summit, May 2020