# Habib Kazemi

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*Phone number available upon request*

## Summary

Second-year Artificial Intelligence (AI) student at the University of Bologna with a solid foundation in Computer Engineering and a growing specialization in Large Language Models (LLMs) and advanced Natural Language Processing (NLP). Familiar with modern AI frameworks such as PydanticAI, LangGraph and LlamaIndex, with hands-on experience building a full-stack multi-agent AI application from concept to deployment. Curious and collaborative learner with a keen interest in applying AI theory to real-world cross-disciplinary projects.

## Technical Skills

**Programming Languages**: Python, Java, Kotlin, C, Shell, JavaScript, TypeScript, Prolog

**Platforms, APIs, and Libraries**: PyTorch, TensorFlow, Keras, Scikit-learn, NumPy, Pandas, Matplotlib, Seaborn, PydanticAI, LangChain, LlamaIndex, LangGraph, SmolAgents, asyncio, Z3, CUDA, OpenMP

**Misc. Tools**: Git, Docker, Linux, Jupyter, Marimo, uv (Python package manager), SQL, MiniZinc

## Projects

**Adaptive Language Acquisition System** Jul 2025 - Present
*Full-Stack multi-agent AI Application* *Python, LLM, PydanticAI, Py-FSRS, FastAPI, PostgreSQL, Redis, arq, Docker*

- Architected a cognitively-informed multi-agent language learning system that dynamically extracts linguistic features from arbitrary user content and generates contextually-aware practice scenarios using principles from second language acquisition theory and memory consolidation research.
- Live Demo: lingua.habibkazemi.dev — Proof of Concept

**Mitigating Reasoning-LLM Social Bias** Jul 2025
*NLP* *Python, LLM, LangChain*

- Developed a novel multi-judge pipeline to address how reasoning steps in LLMs can introduce or amplify stereotypes by identifying and filtering biased reasoning steps before they influence final answers.
- Conducted extensive experiments on BBQ (English) and MBBQ (multilingual: English, Spanish, Dutch, Turkish) datasets to evaluate bias reduction effectiveness.
- GitHub Repository: github.com/kazemihabib/Mitigating-Reasoning-LLM-Social-Bias

**Sexism Detection** Jan 2025
*NLP* *Python, PyTorch, Hugging Face transformers*

- Implemented and evaluated LSTM-based architectures, including Bidirectional LSTM and multi-layer variants, to classify tweets for sexist expressions.
- Applied and assessed zero-shot and few-shot prompting techniques using Mistral-7B-Instruct-v0.3 and Phi-3.5-mini-instruct for sexism detection.
- GitHub Repository: github.com/kazemihabib/Sexism_Detection

**Multiple Couriers Planning Problem** Dec 2024
*Optimization* *Python, Z3, Docker, GitHub Actions*

- Implemented a Satisfiability Modulo Theories (SMT) model using Z3 solver to efficiently solve the Vehicle Routing Problem (VRP), optimizing delivery routes and resource allocation.
- Containerized the entire solution environment with Docker, enabling consistent execution across different systems.
- Established automated CI/CD pipelines using GitHub Actions that build the Docker image, execute SMT solvers and preserve results as downloadable artifacts.
- GitHub Repository: https://github.com/kazemihabib/Multiple-Couriers-Planning-Problem

**Sea Surface Temperature Reconstruction Under Cloud Occlusion** Sep 2024
*Deep Learning* *Python, TensorFlow, Keras*

• Developed a deep learning model to reconstruct sea surface temperatures occluded by clouds using data from the MODIS dataset.

• Implemented a U-Net architecture with encoder-decoder structure and skip connections for effective image reconstruction.

**Supermarket Product Recognition** Jul 2024
*Computer Vision-based Object Detection* *Python, OpenCV*

• Implemented a computer vision system that detects and recognizes supermarket products from heavily noise-corrupted shelf images.

• Designed an image processing pipeline combining median blur and bilateral filtering for denoising, SIFT feature extraction with homography-based transformations to locate products, and verification through template matching, HSV color analysis, and channel-specific feature matching to distinguish similar-looking products despite significant noise.

• Successfully implemented both single and multiple instance detection with precise reporting of product locations, dimensions, and counts.

• GitHub Repository: https://github.com/kazemihabib/Supermarket-Product-Recognition

**GPU-Accelerated Genetic N-Queen Solver** Feb 2019
*Genetic Algorithms, CUDA Acceleration* *C, CUDA, GPU*

• Solved the N-Queen problem using a genetic algorithm implemented in C.

• Analyzed performance metrics and identified that the fitness function was responsible for 99.5% of the execution time.

• Leveraged GPU acceleration with CUDA to optimize the fitness function, achieving a 30x speedup over a baseline CPU implementation.

• GitHub Repository: https://github.com/kazemihabib/GPU-Accelerated-Genetic-Algorithm-N-Queen

## Experience

**Backend Developer (Part-time)** Oct 2021 – Mar 2022
*Dadeh Afzar Arman* *Tehran, Iran*

• Built a backend system for sending bulk SMS using NestJS and TypeScript.

• Integrated third-party SMS providers and developed RESTful APIs for scheduling and tracking message delivery.

**Android Developer Intern (Remote)** Jul 2018 – Dec 2018
*VideoLAN* *Paris, France*

• Contributed to the VLC for Android open-source project by refactoring code using Kotlin and adopting MVVM architecture.

• Implemented coroutine-based concurrency and replaced legacy Java components with modern Kotlin equivalents.

• Designed and introduced the project's first unit and instrumentation tests, improving code quality and maintainability.

• Integrated Room for database management and migrated old database logic to support reactive data flows.

• Resolved long-standing user-reported bugs and implemented highly requested features.

## Education

**University of Bologna** Bologna, Italy
*M.S. in Artificial Intelligence* *Sep 2023 – Expected Mar 2026*

**Shiraz University** Shiraz, Iran
*B.S. in Computer Engineering - Hardware* *Sep 2014 – Jul 2019*

## Languages

English (Fluent), Persian (Native), Turkmen (Native), Italian (Beginner)