



Niloofar Sasannia

niloofarsasannia@gmail.com

+39 351 319 6169

Milan, Italy

LinkedIn

Research Interests

Large Language Models (LLMs), Generative AI, Human-Computer Interaction (HCI), Educational Technology (EdTech), Digital Accessibility and Conversational AI.

Experience

Research Assistant, i3lab – Politecnico di Milano

Feb 2024 – Mar 2024

- Spearheaded the frontend development for **Filippo's Story** using **React**, creating a therapeutic interactive environment tailored for children with Neurodevelopmental Disorders (NDD).
- Engineered a narrative-driven cognitive matching system where users interact with digital objects following a horse-themed story, designed to support conceptual mapping and language acquisition.
- Integrated an **LLM-powered conversational assistant** into the gameplay to provide real-time, adaptive pedagogical scaffolding and enhance student engagement through natural dialogue.

Data Scientist (Analytics & AI), APSY (USA)

May 2022 – Oct 2024

- Developed and validated predictive machine learning frameworks in **Python** (Scikit-learn, Pandas) to characterize user behavior and optimize product retention strategies.
- Architected automated **SQL-based ETL** pipelines across PostgreSQL and MySQL environments to ensure 100% data consistency for high-level financial and product reporting.
- Deployed scalable, cloud-native analytical workflows using **AWS** (RDS, S3, Lambda) and established robust CI/CD protocols via GitHub Actions.

Software Engineer & Scrum Master, Saman Mechanic

Mar 2021 – Apr 2022

- Orchestrated the technical migration of monolithic legacy ERP systems to a microservice architecture utilizing **Python (Flask)** and containerization.
- Facilitated Agile ceremonies and sprint planning for over five cross-functional teams, ensuring alignment between iterative software delivery and business requirements.
- Conducted technical reviews for UI/UX accessibility, focusing on improving dashboard engagement for enterprise clients.

Network Administrator, Shiraz Petrochemical Complex

Jan 2017 – Feb 2021

- Optimized enterprise-level infrastructure by monitoring high-availability network KPIs and conducting statistical anomaly detection to maintain system reliability.
- Leveraged quantitative methods to analyze network performance data, proactively identifying and resolving vulnerabilities in critical hardware systems.

Education

Politecnico di Milano, M.Sc. in Telecommunication Engineering

Feb 2023 – Oct 2025

Thesis: Lexicare: Game-Based Learning with LLM-Powered Conversational AI for Dyslexia Support [Demo Video]

- Engineered an AI-driven platform utilizing LLM orchestrators (Foxy assistant) to deliver adaptive pedagogical and emotional support for children with dyslexia.
- Designed and implemented morphology-based literacy activities including Word Building, Word Sort, and Fast Read.
- Conducted technical and pedagogical validation with clinical experts at the **University of Verona**.

University of Jahrom, B.Sc. in Computer Engineering

Sep 2012 – Sep 2016

Thesis: Architecture and Architecture Improvement for Software-Defined Networks (SDN).

Academic Projects

Emoty – *Emotion Recognition for NDD Support*

2025

- Engineered a full-stack system using **React and Python** designed to facilitate emotion recognition and perception for individuals with Neurodevelopmental Disorders.
- Developed interactive interfaces that leverage computational models to translate emotional cues into accessible, therapeutic feedback. [Project Demo]

Music & Paint (Magic Tools) – *Multimodal Expression for Autism*

2025

- Developed a multisensory art therapy platform in **Unity** that enables individuals with Autism to express complex emotions through collaborative painting.
- Integrated **Kinect motion tracking** to generate music based on digital strokes, creating a real-time auditory-visual feedback loop for therapeutic growth. [Project Demo]

Babies360 – *Digital Job Platform for Babysitting Services*

2024

- Designed a specialized digital job platform primarily focused on coordinating babysitting and pedagogical consultation services.
- Modeled and executed the service coordination workflow using **Camunda BPMN** and a microservice architecture to optimize job matching and logistics.

EquiTech: News for All – *Digital Accessibility Research*

2024

- Conducted iterative accessibility audits to identify and mitigate functional barriers for users with visual impairments such as **maculopathy**.
- Proposed design improvements focused on high-contrast layouts and simplified UI based on evidence-based accessibility principles.

Publications

- Sasannia, N. (2025). *Transfer Learning in NLP: Techniques and Applications*. Engineering Sciences Conf., Brussels.
- Sasannia, N. (2024). *Phishing Attacks Detection: A Machine Learning-Based Approach*. International IT Conference, Tbilisi.

References

- **Prof. Franca Garzotto** (Thesis Advisor) – franca.garzotto@polimi.it
- **Prof. Maristella Matera** – maristella.matera@polimi.it