

Ali Aghababaei

Padua, Italy
+39 351 611 4784
ali.aghababaei@studenti.unipd.it
linkedin.com/in/aliaghababaei

Education

- Sep 2022 – Jul 2025 **M.Sc. in ICT for Internet and Multimedia**, *University of Padova, Italy*
- GPA: 110 / 110 (Top 5%)
 - Thesis: *Application of Integrated Gradients explainability to socio-psychological semantic markers*
 - Supervisor: Prof. Tomaso Erseghe
- Oct 2023 – Feb 2024 **Erasmus Exchange Program**, *Warsaw University of Technology, Poland*
- GPA: 4.75 / 5.0
- Sep 2014 – Sep 2019 **B.Sc. in Electrical Engineering**, *Ferdowsi University of Mashhad, Iran*
- GPA: 14.46 / 20
 - Thesis: *Design and Construction of Electronic Pest Repellent for Use in Homes*
 - Supervisor: Professor Mohammad Bagher Naghibi Sistani

Research Interests

- Distributed Systems
- Data-Driven Modeling
- Deep Learning
- Network Science
- Data Science
- Machine Learning
- Explainable Artificial Intelligence
- Human-AI Collaboration

Language Proficiency

- English Fluent (C2) — **IELTS Academic: 8.5** (Listening: 8.5, Reading: 8.5, Speaking: 8.5, Writing: 7.5). Test date: 10 December 2024
- Italian A2
- Persian Native

Research and Work Experience

- Jun 2024 – Dec 2024 **Research Assistant**, *University of Padova, Italy*
- Extended my master's thesis on model interpretability, leading to a paper.
 - Applied Integrated Gradients to transformer models (BERT, RoBERTa) for socio-psychological semantic markers (e.g., agency, fear).
 - Validated predictions against human-annotated datasets (Slurs, Twitter #COVID) to enhance transparency in NLP.
- Summer 2018 **Intern**, *Sorak Taban Electricity Distribution Company, Iran*
- Developed electrical installation drawings for pole-mounted transformer sites.
 - Calculated transformer power requirements and ensured proper infrastructure planning.
 - Coordinated with stakeholders including municipal and public authorities.

Publications

- Preprint Aghababaei, A., Nikadon, J., Formanowicz, M., Bettinsoli, M. L., Cervone, C., Suitner, C., Erseghe, T. (2025). *Application of integrated gradients explainability to sociopsychological semantic markers*. arXiv:2503.04989 [cs.CL]. <https://arxiv.org/abs/2503.04989>
- Journal Aghababaei, A., Aghababaei, F., Pignitter, M., Hadidi, M. (2025). *Artificial Intelligence in Agro-Food Systems: From Farm to Fork*. *Foods*, 14(3), 411. <https://doi.org/10.3390/foods14030411>

Awards and Honors

- 2025 Ranked in the top 5% of students in ICT among those entering in 2022 at University of Padova.
- 2014 Ranked in the top 1.12% (2500 out of 222,000) in the Iranian Nationwide University Entrance Exam.
- Placed among the top 0.5% of students in the NODET (National Organization for Development of Exceptional Talents) high school entrance exam (60,000 candidates).

Notable Projects

- Machine Learning **Classification of Ancient Scripts**: Developed classifiers for ancient Japanese cursive (Kuzushiji) script using Support Vector Machines and Neural Networks in Python.
- Computer Vision **Image Repair using SIFT**: Restored corrupted images using image patch matching, implemented in C with the OpenCV library.
- Pattern Recognition **Fashion Item Classification**: Used Neural Networks in Octave to classify the Fashion-MNIST dataset consisting of 10 fashion item types.
- Web Applications **Bookstore Website Development**: Collaborated on a full-stack web app using HTML, CSS, JavaScript, and Node.js, building both the front-end and back-end of an online bookstore.

Skills and Tools

- Programming Languages Python, C, MATLAB

| | |
|--------------------------|--|
| Deep Learning Frameworks | PyTorch, TensorFlow, Keras |
| NLP Libraries | SpaCy, Hugging Face Transformers, NLTK, Gensim |
| Model Interpretability | Captum, SHAP, LIME |
| Computer Vision | OpenCV, PIL, Scikit-Image |
| Machine Learning | Scikit-learn, XGBoost, LightGBM |
| Visualization | Matplotlib, Seaborn, Plotly |
| Data Handling | Pandas, NumPy, SQL |
| Version Control | Git, Bitbucket |
| General Tools | Microsoft Office, LaTeX |

Hobbies

Reading, fitness, football, and learning languages

References

| | | |
|--------------------------------|---|---|
| Prof. Tomaso Erseghe | Associate Professor, University of Padova | <i>tomaso.erseghe@unipd.it</i> |
| Prof. Marco Giordani | Associate Professor, University of Padova | <i>marco.giordani@unipd.it</i> |
| Prof. Federica Battisti | Associate Professor, University of Padova | <i>federica.battisti@unipd.it</i> |
| Dr. Milad Hadidi | Senior Scientist, University of Vienna | <i>milad.hadidi@univie.ac.at</i> |
| Prof. Mieczysław Muraszkiewicz | Full Professor, Warsaw University of Technology | <i>mieczyslaw.muraszkiewicz@pw.edu.pl</i> |