

SINA AFSHAR

University of Pisa · Computer Science and Networking

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PROFILE

Master's candidate in Computer Science and Networking at the University of Pisa, with graduate work spanning algorithms and data structures, software development, distributed systems and computer networks, implemented in C++, Java and Python on Linux. **Particular interest in machine learning and artificial intelligence**, supported by certified training and by applied coursework in neural and fuzzy methods. Peer-reviewed IEEE conference author. Brings a decade of professional engineering practice and the accompanying discipline in specification, documentation and delivery. Based in Italy with EU work authorisation and available for relocation across Europe.

EDUCATION AND TRAINING

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| 2022 – Present | Master of Science in Computer Science and Networking
<i>University of Pisa, Department of Computer Science · Pisa, Italy</i> <ul style="list-style-type: none">– Core areas: algorithms and data structures, software development and systems programming, concurrent and distributed computing, computer networks, computer architecture and performance evaluation.– Programming and tooling: C++, Java, Python, Linux, Git, containerisation and cluster job scheduling.– Currently at the thesis stage. |
| 2011 – 2015 | Bachelor of Science in Electrical Engineering (Power Systems)
<i>University of Malayer, Department of Electrical & Computer Engineering · Malayer, Iran</i> <ul style="list-style-type: none">– Quantitative foundation in engineering mathematics, signals and systems, control theory and programming. |
| 2006 – 2010 | High School Diploma and Pre-University Course (Mathematics and Physics)
<i>Dr. Ali Shariati School · Hamedan, Iran</i> |

RESEARCH INTERESTS

- **Artificial Intelligence and Machine Learning** — learning-based methods, neural network architectures and fuzzy inference, and their application to engineering and systems problems.
- **Computer Networks and Distributed Systems** — network architectures and protocols, software-defined networking, and the design of concurrent and distributed applications.
- **Cloud and Edge Computing** — service orchestration, containerised deployment, and the distribution of computation between cloud and edge resources.
- **Cybersecurity** — secure system and network design, threat modelling, and the protection of distributed and cloud-hosted services.
- **Software Engineering** — object-oriented and concurrent design, testing and benchmarking, and maintainable architecture for large-scale systems.
- **Data-Driven and Intelligent Systems** — data pipelines, performance measurement, and systems that adapt their behaviour from observed data.

PUBLICATION

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| 2018 | Wireless Power and Full-Duplex Data Transfer System Using the Combination of TDM and FDM Through a Same Inductive Link
S. Afshar, S. M. R. Tousi and H. Karami · 26th Iranian Conference on Electrical Engineering (ICEE 2018), IEEE · doi:10.1109/ICEE.2018.8472488 |
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SELECTED TECHNICAL PROJECTS

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| 2024 – 2025 | Parallel and Distributed Sorting — C++, OpenMP, FastFlow and MPI
<i>University of Pisa · Academic project</i> <ul style="list-style-type: none">– Designed and implemented four versions of a merge sort for variable-length records: a sequential baseline, an OpenMP shared-memory version, a FastFlow version, and a hybrid MPI and FastFlow distributed version.– Benchmarked execution time, speedup, efficiency and scalability across multiple cores and cluster nodes using SLURM job scripts, and documented the trade-offs between shared-memory and message-passing decomposition.– <i>Stack: C++, OpenMP, FastFlow, MPI, SLURM, Bash, Linux.</i> |
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Distributed Services and Systems Programming Portfolio

University of Pisa · Coursework projects and prototypes

- Developed RESTful web services in Python with Flask, specified through OpenAPI and packaged with Docker for reproducible deployment on Linux.
- Implemented multithreaded and object-oriented components in C++ and Java, covering synchronisation, thread pools and data-structure design, and explored GPU and vectorised computation.
- Built and analysed network topologies in Mininet, configuring routing protocols and software-defined networking controllers, and measuring latency, throughput and convergence behaviour.

PROFESSIONAL EXPERIENCE

Design Engineer

Paya Bana · Tehran, Iran

- Designed and supervised installation and facility projects across residential, commercial and industrial sites, working from requirements and calculations through to issued-for-construction documentation.
- Produced calculation sets and simulation models in MATLAB and Simulink and in specialist design software, validating outputs against applicable technical standards.
- Coordinated revisions with contractors and clients and maintained drawing revision control and technical documentation across multi-year project lifecycles.
- Applied the resulting discipline in specification, version control and requirement tracing directly to software development and testing practice.

TECHNICAL SKILLS

Programming	C++ (C++11/17), Java, Python, C, MATLAB
Machine learning and AI	Applied machine learning, artificial neural networks, fuzzy inference and adaptive methods
Software engineering	Object-oriented design, algorithms and data structures, concurrency and multithreading, REST API design, Flask, OpenAPI, Docker, Git and GitHub
Distributed computing	OpenMP, MPI, FastFlow, CUDA and SIMT, AVX and SIMD intrinsics, SLURM, profiling and performance analysis
Networking and systems	TCP/IP, routing protocols, software-defined networking, Mininet, Linux, macOS, SSH, NFS
Tools and documentation	Microsoft Office, Visio and EdrawMax, Adobe Photoshop, AutoCAD

CERTIFICATIONS AND PROFESSIONAL DEVELOPMENT

- **Machine Learning** — Stanford University (Coursera).
- **Python** — beginner to intermediate (20 hours).
- **MATLAB and Simulink** — beginner to advanced (31 hours).
- **PCB Design with Eagle and AutoCAD** — LinkedIn Learning.

HONOURS AND AWARDS

- **2014** — Ranked 800th (top 10%) among more than 30,000 candidates in the Iranian national postgraduate entrance examination (*Konkur*).
- **2011** — Ranked in the top 5% among more than 252,000 candidates in the Iranian national undergraduate entrance examination (*Konkur*).
- **2009** — Semi-finalist, Iranian National Physics Olympiad.

LANGUAGE SKILLS

Language	Listening	Reading	Spoken interaction	Spoken production	Writing
Persian	Native	Native	Native	Native	Native
English	B2	B2	B2	B2	B2
Italian	B1	B1	B1	B1	B1

Levels: A1/A2 basic user · B1/B2 independent user · C1/C2 proficient user (Common European Framework of Reference for Languages). English certified by IELTS Academic, overall band 6.5 (Speaking 7.0, Writing 6.5, Listening 6.5, Reading 6.5); certificate available on request.

ADDITIONAL INFORMATION

Work authorisation	EU residence permit (Italy). Available for relocation within the EU.
Target roles	Software development, systems and backend engineering, computer networks, applied machine learning, and doctoral research in computer science
Transferable skills	Teamwork, precise planning and execution, and independent working, developed across a decade of engineering practice
References	Available on request