

Roberto Fronteddu

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Italian citizen | U.S. Permanent Resident

EDUCATION

University of Ferrara

Ferrara, Italy

- Ph.D., Computer Science Engineering *Aug 2018 – May 2021*
- M.S., Computer and Automation Engineering *Sep 2013 – Dec 2016*
- B.S., Electronics and Computer Engineering *Sep 2008 – Mar 2013*

EXPERIENCE

Research Associate

Sep 2016 – Present

Institute for Human and Machine Cognition (IHMC)

Pensacola, FL

- Architected distributed systems for defense operations in austere environments.
- Delivered secure, fault-tolerant microservices for telemetry, autonomy, and real-time situational awareness—deployed in field exercises and government prototypes.
- Contributed to multi-million-dollar defense programs (ONR, ARL, AFRL), supporting proposals and funding.
- Led and mentored junior engineers; conducted peer reviews in Agile/SCRUM teams.
- Owned full software lifecycle—from stakeholder engagement to DevOps automation—ensuring high code quality.
- Developed reusable RESTful APIs with Spring Boot/JPA/Hibernate/Flask, accelerating delivery across projects.
- Published technical reports and peer-reviewed research on autonomous systems and resilient communications.

Research Scholar

Sep 2015 – Sept 2016

Institute for Human and Machine Cognition (IHMC)

Pensacola, FL

- Built full-stack data integration and monitoring tools (Java, C++, Python, Golang, React) for real-time sensor analysis and autonomous decision support.
- Wrote reusable designs and docs that cut onboarding time and improved consistency.
- Published technical reports and peer-reviewed research on autonomous systems and resilient communications.

PROJECTS HIGHLIGHTS

SENSEI | *Java, C++, Go Python, Flutter, FastAPI, PostgreSQL, Docker, GIT, JIRA*

June 2015 – Present

- Engineered a full-stack system for telemetry in high-latency, low-bandwidth environments.
- Created GraphQL and REST endpoints for data services.
- Created a mobile (Android) app for real-time monitoring access.
- Designed a custom communication middleware for resilient data delivery over degraded links.
- Optimized network use with adaptive media transcoding and semantic filtering.
- Integrated anomaly detection to flag irregular telemetry and network behavior.

Alpaca | *Python, Ollama, LLMs, Keycloak, NGINX, Git*

May 2024 – Present

- Built AI analyzer with Ollama, Gradio, and Python to align organizational goals with actionable R&D projects.
- Secured app using Keycloak for auth and NGINX as reverse proxy.

Mockets | *C++, Java, JNI, Git*

Sep. 2016 – Present

- Extended and maintained a transport protocol optimized for high-latency, low-bandwidth environments.
- Integrated OpenSSL DTLS for enhanced protocol security.
- Migrated project to use STL library for improved performance and portability.

TECHNICAL SKILLS

Languages: Java, Python, C/C++, Go, Rust, JavaScript (React, Node.js, jQuery), HTML/CSS

Frameworks: Spring Boot, JPA, Hibernate, Flask, REST, GraphQL, WebSockets, Flutter, Docker, Kubernetes

DevOps/Tools: Git, Jenkins, Maven, Gradle, AWS, Postgres, SQL, VS Code, IntelliJ, PyCharm, JIRA

Architecture: Microservices, Distributed Systems, SOA, TDD, SDLC, Agile/SCRUM, Cross-platform Development

Data and Web Services: RESTful APIs, SOAP/XML, WSDL, XSLT, XPath, JAXB

Other: UML, MS Visio, Documentation (Tech Specs, Wiki), Strong communicator, Mentor, Critical thinker