

Alessandro Amato

Pensacola, FL

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Summary

Ph.D. student at the University of West Florida, enrolled in the Intelligent Systems and Robotics program. My research interests include Reinforcement Learning, Multi-agent Reinforcement Learning, Mobile Ad-Hoc Networks, High-Performance Computing, and Game Engines. Currently, my research focuses on using Graph Neural Networks to improve cooperation and scalability in multi-agent systems.

Education

University of West Florida

Pensacola, USA

Ph.D. Student, Intelligent Systems and Robotics Department

Aug 2023 - current

- Using Graph Neural Networks for Goal-Based Multi-Agent Reinforcement Learning in Social Navigation and networked scenarios.
- Applying Multi-Agent Reinforcement Learning for distributed job allocation in resource- and communication-constrained networks.
- Designing and implementing distributed networking scenarios for solution testing.
- Utilizing Reinforcement Learning in simulated environments to determine the value of information in messages within resource- and communication-constrained networks.

University of Ferrara

Ferrara, IT

MSc in Informatics and Automation Engineering

Sept 2020 - March 2023

- **Dissertation Thesis:** *Real-time physical accurate simulator for Mobile ad-Hoc Networks* - This thesis proposes an integration between a Game-Engine and a Network emulator to compute the radio signal propagation in an urban environment by utilizing a custom ray-tracing engine

University of West Florida

Pensacola, Florida

MSc in Computer science

Sept 2021 - Aug 2022

- Object recognition in distributed and embedded systems
- Sorting algorithm implementation for High-Performance computing platform with Open Mp
- Machine learning approach to predict Value of Information of messages in Vehicular ad-hoc networks

University of Ferrara

Ferrara, IT

BCs in Informatics and Electronics Engineering

Sept 2017 - Sept 2020

- **Dissertation Thesis:** *IoHT system for telemonitoring the conditions of at-risk patients.* - The goal of this thesis is to develop a product for the Internet of Health Things that enables the remote telemonitoring of high-risk patients. The system will communicate with the patient's doctor to provide real-time updates on the patient's pharmacological behavior and ensure that medications are being taken correctly.

Work Experience

Institute for Human and Machine Cognition (IHMC)

Pensacola, Florida

Research Associate

May 2022 - current

- Applying multi-agent reinforcement learning for job orchestration in resource- and communication-constrained environments.
- Lead developer of IBVT: a 3D real-time, physically accurate simulator for Mobile Ad-hoc Networks, built with EMANE and Unity, featuring a custom, high-performance raytracing-based radio propagation model.

University of West Florida

Pensacola, Florida

Graduate Research Assistant

Aug 2021 - Current

- Provided support to faculty for the following courses: Intermediate Computer Programming, Data Structures and Algorithms I, Programming Using C++, and Systems and Networks II.

RedMountain - FG sas

Breganze, Italy

Software Developer and IT Consultant

Aug 2017 - Aug 2021

- Developed a platform using the MEAN stack (MongoDB, Express, Angular, Node.js) to optimize internal company production tasks.
- Created WordPress plugins specifically designed for e-commerce-oriented applications.
- Developed IoT solutions using the ESP-32 microprocessor for device-to-smartphone communication using BLE.
- Built hybrid applications using the Ionic Framework.

Relevant Publications

Encoding Goals as Graphs: Structured Objectives for Scalable Cooperative Multi-Agent Reinforcement Learning

CoCoMARL@RLC 2025 - Reinforcement Learning Conference

2025

- DOI: <https://openreview.net/forum?id=HUO04ABHyl>

Multi-Agent Reinforcement Learning for Distributed Workflow Orchestration at the Tactical Edge

MILCOM 2024 - IEEE Military Communications Conference

2024

- DOI: 10.1109/MILCOM61039.2024.10773787

Distributed Autonomous Swarm Formation for Dynamic Network Bridging

INFOCOM 2024 - IEEE Conference on Computer Communications

2024

- DOI: 10.1109/INFOCOMWKSHPS61880.2024.10620774

Dynamically Creating Tactical Network Emulation Scenarios using Unity and EMANE

MILCOM 2023 - IEEE Military Communications Conference

2023

- DOI: 10.1109/MILCOM58377.2023.10356208

Volunteer

NATO IST-193 Research group

Pensacola, Florida

Appointed Technical Team Member

Jul 2023 - current

- IST 193 group's objectives are to investigate Edge Computing for the tactical edge, assess its applicability to military needs, explore standards and integration with existing systems, demonstrate benefits, propose standardization, and consider AI/ML applications.

Skills

Programming Advanced Knowledge in C# (.Net, Unity, Razor/Blazor), Python
Academic Knowledge in Java, JavaScript, Typescript, C, C++03
Basics Knowledge Ruby-On-Rails

Tools and Framework Terraform, Angular, React, Ionic, Amazon web services, Git, Network Emulation and Simulation tools, Azure

Soft Skills Teamwork, Communication, Problem-solving

Languages

English Professional proficiency

Italian Native proficiency