

## Raffaele Galliera

Ph.D. Student in Intelligent Systems  
and Robotics  
Web LinkedIn GitHub  
Citizenship: Italian

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## Work Experience

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### ● Research Assistant

08/2021 - Present  
University of West Florida  
Institute for Human and Machine Cognition (IHMC)  
Pensacola, Florida, USA

#### Achievements/Tasks:

- RL and MARL applications to different network optimization problems
- Presented at NeurIPS and AAAI workshops in 2023
- Accepted into the 29th AAAI/SIGAI Doctoral Consortium at AAAI 2024
- Appointed Member of the NATO IST-194 Research Group on Adaptive Networks at the Tactical Edge
- Containerization of distributed DL/RL applications
- Deployment of DL models at the edge

### ● Graduate Assistant

08/2020 - 08/2021  
University of West Florida  
Pensacola, Florida, USA

#### Achievements/Tasks:

- Workshops on memory optimization for undergraduate students and utilization of Jupiter Notebooks for AI projects
- Teaching Assistant (grading and tutoring)
- Achieved 3rd Place at the nationwide competition AI Tracks at Sea

### ● Software Developer

03/2018 - 08/2020  
Enrian Partners  
Prague, Czech Republic

#### Achievements/Tasks:

- Full-stack Software Developer

## Education

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- **Ph.D. - Intelligent Systems & Robotics**

08/2021 - 12/2025  
University of West Florida  
Pensacola, Florida, USA

My Ph.D. research is exploring the optimization of communication tasks with (Multi-Agent) Reinforcement Learning (RL/MARL) in Point-to-Point and Group Communication (GC) networks. I'm investigating different aspects concerning the agents' communication and their learned strategies, designing new methods to improve cooperation. I am also interning as a Research Assistant at the NOMADS lab (IHMC) in close contact with researchers and developers of communication protocols for challenged networking environments, where we collaborate to deploy learned policies on real protocols and networks.

- **Master's Degree - Computer Science**

08/2020 - 08-2021  
University of West Florida  
Pensacola, Florida, USA

- **Bachelor's Degree - Electronics and Computer Science Engineering**

09/2014 - 09/2019  
University of Ferrara  
Ferrara, Italy

## Organizations and Achievements

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- **Accepted into the 29th AAAI/SIGAI Doctoral Consortium at AAAI 2024**

02/2024  
<https://aaai.org/aaai-conference/dc-24-program/>.

- **Appointed Member of the NATO IST-194 Research Group on Adaptive Networks at the Tactical Edge**

02/2023 - Present  
The main objective of this group is to develop a novel network architecture with methods and protocols that can adapt, manage, and control existing radio technologies in heterogeneous networks for increased robustness and optimized planning and use of the available network resources.

- **Achieved 3rd Place at the national competition "AI Tracks at Sea"**

01/2021  
This challenge solicited software solutions to automatically generate georeferenced tracks of maritime vessel traffic based on data recorded from a single electro-optical camera imaging the traffic from a moving platform.  
<https://www.doncio.navy.mil>

● **Vice-President and President of the Artificial Intelligence and Data Analysis organization**

08/2020 - 08/2022  
University of West Florida

## Publications

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● **Marine Vessel Tracking using a Monocular Camera**

06-2021  
2nd International Conference on Deep Learning Theory and Applications (DeLTA)  
DOI: 10.5220/0010516000170028

● **An Introduction to Data Encryption and Future Trends in Lightweight Cryptography and Securing IoT Environments**

12-2021  
(Journal) Transactions on Engineering and Computer Sciences  
DOI: 10.14738/tmlai.102.11939

● **A Machine Learning Approach to the Determination of Value of Information to Operators and Applications on the Tactical Edge**

09-2022  
2022 International Conference on Military Communication and Information Systems (ICMCIS)  
DOI: 10.1016/j.procs.2022.09.015

● **MARLIN: Soft Actor-Critic based Reinforcement Learning for Congestion Control in Real Networks**

05-2023  
Presented at the AAAI 2023 Workshop on Reinforcement Learning Ready for Production  
Published at NOMS 2023 IEEE/IFIP Network Operations and Management Symposium  
DOI: 10.1109/NOMS56928.2023.10154210

● **Learning to Sail Dynamic Networks: The MARLIN Reinforcement Learning Framework for Congestion Control in Tactical Environments**

10-2023  
To be published at MILCOM 2023 IEEE Military Communications Conference (MILCOM)  
DOI: 10.48550/arXiv.2306.15591

## ● Learning Collaborative Information Dissemination with Graph-based Multi-Agent Reinforcement Learning

12-2023

Presented at the NeurIPS 2023 Workshop on Machine Learning for Systems

DOI: 10.48550/arXiv.2308.16198

## Community Services

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- Chair of the Workshop on Reinforcement Learning for Communications and Network Optimization (RECON) at MILCOM 2023
- Reviewer: AAMAS24

## Implementation Skills

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- Software Development and Software Engineering
- Containerization of RL and ML environments
- Python, C, C++, Java, Haskell, Ruby, SQL, Git
- Proficient in major RL and DL libraries and frameworks such as Gym/Gymnasium, PyTorch, Stable-Baselines, Tianshou, and others

## Languages

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- English - Full Professional Proficiency
- Italian - Native or Bilingual Proficiency

## Interests

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- Artificial Intelligence and Machine Learning
- (Multi-Agent) Reinforcement Learning
- Multi-Agent Systems
- Distributed Systems
- Communication Networks
- Computer Vision
- ML at the Network Edge