Romina García Camargo

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EDUCATION

University of Pennsylvania, School of Engineering and Applied Science Philadelphia, PA PhD Electrical and Systems Engineering 2024 - 2029Universidad de la República, Facultad de Ingeniería

Bsc. Communication Systems Engineering

PUBLICATIONS

On the Transferability of Graph Neural Networks for Resource Allocation in Wireless Networks (2024): S. Fernández, R. García Camargo, M. Eisen, A. Ribeiro, F. Larroca., IEEE URUCON.

Building a Radio Community Across Students, Industry and Enthusiasts with Capture the Flag (2024): F. Larroca, G. Belcredi, R. García, G. García González, L. Inglés, C. Mariño, M. Randall, Congreso de Tecnología, Aprendizaje y Enseñanza de la Electrónica (TAEE).

Implementation of a Low-cost AIS Transmitter based on SDR (2024): R. García, M. Pirri, G. Belcredi, C. Rattaro, Latin American Networking Conference.

Code Huntresses: Promoting gender equity in ICTs (2023): R. García, A. Armendariz Voelker, J. Umpierrez, C. Rattaro, Latin American Women in Computing (LAWCC).

EXPERIENCE

UdelaR - Institute of Electrical Engineering

Research and Teaching Assistant at the Telecommunications Department Montevideo, Uruquay

- Infrastructure on Demand: Designed algorithms and software tools for swarm drone experiments as well as assembled the robots.
- Perception-Action-Loops (PAC): Developed software tools for inter-robot communications based on Graph Neural Networks (GNNs). Participated in experiments in collaboration with the University of Pennsylvania.
- Grupo ARTES: Collaborated in the research group for Network, Traffic and Service Statistics Analysis.
- Teaching: Basic and advanced data networks undergraduate courses and hands-on electrical engineering course on wireless communication.

Projects and internships

Wireless Learning for Resource Allocation (2024): Adaptation of a pre-designed wireless resource allocation algorithm to conduct tests on real datasets. Tested spatial and temporal transferability of the trained GNN-based model.

ITAIS (2023-2024): Undergraduate capstone project. Implementation of a low-cost transmitter for the Automatic Identification System (AIS) technology. The work included use of Software Defined Radio devices and resulted in a new GNU Radio module called *gr-itais* available online.

Internship at the University of Pennsylvania (July-August 2023): Developed software tools for inter-robot communications in drone swarms. Tested different network devices and analyzed their performance. Designed and organized experiments with real robots to be later conducted in Uruguay, during December of 2023.

Internship at Universidad Nacional de Córdoba (May 2023): Created a real dataset for a radiofrequency fingerprinting project using Software Defined Radio technology. The dataset consisted of LoRa preambles within a predefined sensor network. After acquiring the data, data augmentation procedures were carried out.

Monitoring of the Optical Network of ANTEL (2022-2023): Worked together with ANTEL, a state-owned Uruguayan telecommunication company, to improve the monitoring of their optical network. Studied, tested and documented the use of an Apache Kafka system to monitor alarms in different network elements.

Montevideo, Uruguay

August 2021 – Present

2019 - 2024

ACTIVITIES AND AWARDS

Girls in ICT

Organizer

- Created and conducted workshops for high school girls (ages between 12 and 16) covering topics such as wireless communications, modulation techniques and machine learning algorithms.
- Organized yearly events, creating promotional material for the activity and scheduling the visits of high school students.
- Presented the degrees available at the Faculty of Engineering in UdelaR, highlighting statistics of gender inequality in the Information and Communication Technologies area.
- Visited different high schools during Women's day to explain our position in the Engineering field in Uruguay.

Best student paper award at URUCON

Co-author

• Received the Best Student Paper award in the area of communications.

Capture the Flag

Organizer

- Designed introductory-level challenges within the topics of digital communications and modulation techniques.
- Introduced the game in a treasure-hunt scheme to visitors during the annual exhibition of the faculty.

Communication Systems Engineering Career Commission

Student representative

- Represented the student body, revising course changes and expressing student concerns regarding the degree's organization.
- Participated in monthly meetings, reviewing documents and surveying students to provide clear ideas during discussions.

Poster presentation distinction at Jornada de Jóvenes Investigadores

Project member

• Presented intermediate results of my undergraduate thesis and received a distinction in the area of ICT.

First place in ;Big Bang 2022! - Hackatón de drones

Team Captain

- Achieved the first place in a drone assembling hackathon.
- Improved the design of our drones and solved different challenges using both remote controlled and automatic flight conditions.

SKILLS

Languages: Spanish (native), English (fluent, C2), German (advanced, B2). **Programming Languages**: Python (preferred), C, C++.

Technologies and frameworks: Pytorch, Docker, ROS, GNU Radio, Apache Kafka, Linux.

October 2022 Mercedes, Uruguay

November 2024 Montevideo, Uruquay

Montevideo, Uruguay

March 2023-July 2024

August. 2022 – August 2024

Montevideo, Uruguay

Montevideo, Uruguay

March. 2022 – Present

Asunción, Paraguay

October 2023