

Miquel Sirera Perelló

PH.D. STUDENT, COMPUTER ENGINEERING

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Research Focus

Distributed inference for large language models, with a focus on communication-efficient serving across resource-constrained edge devices. My work spans model-parallel deployment, latent-representation compression, and resilient inference under unreliable networks and node failures.

Education

Northeastern University

Boston, Massachusetts

PH.D. STUDENT IN COMPUTER ENGINEERING

Jan 2024 – Present

- **Expected:** December 2028
- **Research Interests:** Machine Learning, Large Language Models, Distributed Training/Inference Systems, Machine Learning for Wireless Communications
- **Advisor:** advised by Prof. **Stratis Ioannidis**

Northeastern University

Boston, Massachusetts

M.S. IN ELECTRICAL AND COMPUTER ENGINEERING

Jan 2024 – Dec 2025

- **Concentration:** Computer Vision, Machine Learning, and Algorithms

Universitat Politècnica de Catalunya

Barcelona, Spain

BSC IN DATA SCIENCE AND ENGINEERING

Sept 2019 – July 2023

- GPA: **8.89/10**. Honors in Discrete Mathematics and Logic, Mathematical Optimization, Search and Analysis of Information, and Advanced Topics of Data Science

Publications

CONFERENCE

[C5] **Communication-Aware Model Distributed Inference via Latent Representation Compression**

P. Gholami, T.-T. Davarakis, T. Li, **M. Sirera Perelló**, S. Reddy, A. Y. Yıldız, A. Arora, A. Eryilmaz, S. Ioannidis, C. Li, H. Seferoglu, N. Shroff
ACM MobiHoc 2026 (to appear)

[C4] **Neural Point Processes for Pixel-wise Regression**

C. Shi, G. Özcan, **M. Sirera Perelló**, Y. Li, N. I. Shamsi, S. Ioannidis
AISTATS 2025

[C3] **JARVIS: Disjoint Large Language Models on Radio VLANs for Intelligent Services**

M. Sirera Perelló, J. Groen, W. Liu, S. Ioannidis, K. Chowdhury
IEEE MILCOM 2024 (presented)

[C2] **T-PRIME: Transformer-based Protocol Identification for Machine-learning at the Edge**

M. Belgiovine, J. Groen, **M. Sirera Perelló**, C. Tassie, S. Trudeau, S. Ioannidis, K. Chowdhury
IEEE INFOCOM 2024

[C1] **MEGATRON: Machine Learning in 5G with Analysis of Traffic in Open Radio Access Networks**

M. Belgiovine, J. Gu, J. Groen, **M. Sirera Perelló**, U. Demir, K. Chowdhury
IEEE ICNC 2024

UNDER REVIEW

LOKI: Memory-Free Null-Space Constrained Lifelong Knowledge Editing

M. Eskandar, **M. Sirera Perelló**, S. Ioannidis, J. Dy. *Under submission, NeurIPS 2026* arXiv:2606.19679

CAMP: Communication-Aware Neural Mapping and Pruning

M. Sirera Perelló^{*}, A. Y. Yıldız^{*}, T.-T. Davarakis^{*}, H. Seferoglu, K. Chowdhury, S. Ioannidis. *Under review.*

^{*} Equal contribution

Experience

Northeastern University

Boston, Massachusetts

GRADUATE RESEARCH ASSISTANT

Jan 2024 – Present

- Build communication-efficient methods for serving models across distributed edge nodes, including latent-representation compression for model-parallel inference (ACM MobiHoc 2026)
- Design fault-tolerant distributed LLM inference: split layers across devices with peer recovery, evaluated on NSF Colosseum and a Raspberry Pi cluster (IEEE MILCOM 2024)
- Develop communication-aware mapping and pruning for distributed edge deployment under mixed network conditions

GENESYS Lab, Northeastern University

Boston, Massachusetts

UNDERGRADUATE RESEARCHER

Feb 2023 – July 2023

- Bachelor's thesis on deep learning for wireless signal classification, supervised by Prof. Kaushik Chowdhury

Abi Global Health

Barcelona, Spain

AI ENGINEER INTERN

Mar 2022 – Dec 2022

- Extended MLOps monitoring and developed and refined machine learning models for a tele-health platform

Honors and Awards

June 2019 PAU Distinction, Government of Catalonia

Awarded for achieving a score above 9 out of 10 in the university entrance exams (PAU)

Selected Projects

BECO: Environmentally Conscious Recommendations

Naptilus Tech Lab, Barcelona

SOFTWARE PROJECT

Feb 2022 – June 2022

- Built a machine learning application that uses user data to recommend lower-carbon-footprint choices

Extracurricular

2021-2024 Participant, Datathons and Hackathons

Participated in programming competitions including the **UPC Datathon** and the **Google Hash Code** on two occasions

2018-2019 Spanish Teacher, SpainBCN-Programs

Taught Spanish to foreign students during two summer programs

2015-2019 Volunteer, Community Service

Volunteered at a residence for the elderly and disabled individuals with *La Congregación de las Hermanitas de los Pobres*

2015-2017 Assistant Coach, La Salle Bonanova

Served as a soccer assistant coach for young boys over two seasons, fostering teamwork and sportsmanship

Skills

- **Programming:** Python, C++, R, SQL, MATLAB, Java, AMPL
- **ML / Systems:** PyTorch, distributed training and inference, model compression, Git, Linux
- **Languages:** Catalan (native), Spanish (native), English (proficient)