Chiara Camerota

DATA SCIENCE · CYBER-PHYSICAL AND COMMUNICATION-CONSTRAINED SYSTEMS

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"Oh no, not again."

Research Interests

I am currently a postdoc researcher at Saint Louis University. My research interests include computer science and Internet of Things (IoT) systems. Currently, I am specializing in artificial intelligence applications for communication networks and cybersecurity within edge computing, as well as the integration of IoT systems. I have extensive experience in leveraging machine learning and AI across various interdisciplinary projects.

Education

PhD in Information Engineering, DaCoNets -

UNIVERSITY OF FLORENCE   *Nov. 2021 – June 2025*

Dissertation's title: **Machine Learning application to IoT and IIoT security and reliability**
Advisors: Tommaso Pecorella, Andrew D. Bagdanov

Master in Statistics and Financial Science   *110/110 Summa cum laude*

UNIVERSITY OF FLORENCE   *Sept. 2016 – Feb. 2019*

Dissertation's title: **Graphical Models for circular data**
Advisors: Agnese Panzera, Anna Gottard

Bachelor in Statistics   *101/110*

UNIVERSITY OF FLORENCE   *Sept. 2013 – Jul. 2016*

Dissertation's title: **Non-parametric methodology for circular data**
Advisor: Agnese Panzera

Work Experience

Postdoctoral researcher   *St. Louis, MO*

SAINT LOUIS UNIVERSITY   *Jan. 2025 - Feb. 2026*

Advisor: Flavio Esposito
Image classification for malware detection in a communication-constrained system
Smart Farm systems
AI model compression for medical purposes
AI model compression for IoT devices

Visiting student researcher   *St. Louis, MO*

SAINT LOUIS UNIVERSITY   *Jan. 2024 - Jul. 2024*

Resilience analysis of machine learning models applied to synthetic images

Researcher   *Florence, Italy*

DISIT LAB, UNIVERSITY OF FLORENCE   *Apr. 2021 - Nov. 2021*

Study and development of IOT platforms and solutions to process data in the framework of smart city and industry 4.0
Web Developer for Snap4city.org

Consultant   *Florence, Italy*

SCHOOL OF ECONOMICS, VALMON S.R.L.   *Nov. 2017 - Marc. 2018*

Data cleaning
Support for the descriptive analysis

Internship   *Florence, Italy*

ISTITUTO PER LA BIOECONOMIA   *Jan. 2016 - Jun. 2016*

Survey planning for agroforestry systems
Support for the quantitative and qualitative analysis

Honors & Awards

2025	**Winner**, SIGCOMM travel grant	*Coimbra, Portugal*
2024	**Winner**, International Association for Pattern Recognition Research Scholarship Program	*Florence, Italy*
2023	**Winner**, International B5G Student Workshop	*Madrid, Spain*
2021	**Winner**, Student grant for the PhD	*Florence, Italy*

Teaching Experience

Guest lecture for Web Technologies, Computer Networks, and AI Capstone courses   *St. Louis, MO*

DEPARTMENT OF COMPUTER SCIENCE, SAINT LOUIS UNIVERSITY   *Fall 2025*

   TEACHER Lecture on Docker

Guest lecture for Web Technologies, Computer Networks, and AI Capstone courses   *St. Louis, MO*

DEPARTMENT OF COMPUTER SCIENCE, SAINT LOUIS UNIVERSITY   *Fall 2025*

   TEACHER Lecture on Chameleon Cloud
   TEACHER Lecture on Transformer-based architecture

Guest lecture for IoT and Smart Cities courses   *Florence, Italy*

SCHOOL OF ENGINEERING, UNIVERSITY OF FLORENCE   *Fall 2021*

   TEACHER Lecture on IoT platform
   TEACHER Lecture on graph model for ontology

Teaching Assistant for Statistics course   *Florence, Italy*

SCHOOL OF ECONOMICS, UNIVERSITY OF FLORENCE   *Fall 2017 - Fall 2018 AND Fall 2019*

   Lectures planning

Publication

References

[1] C. Camerota, S. C. Garimella, M. Gidugu, W. Ali, D. Azzaro, A. F. Irakoze, N. Shakoor, and F. Esposito, "Farm Intelligence at the Edge: A Cyber-Physical Aggregator for Crop Data Collection, Processing, and Sharing," submitted to ACM/IEEE International Conference on Embedded Artificial Intelligence and Sensing Systems (SenSys), 2026.

[2] C. Camerota, F. Restuccia, and F. Esposito, "CAST: A Communication-Aware Split Transformer for Malware Classification in the Internet of Things," submitted to IEEE INFOCOM, 2026.

[3] J. Palomares, C. Camerota, E. Coronado, C. Cervelló-Pastor, M. Shualb Siddique, and F. Esposito, "Taming Bandwidth Bottlenecks in Federated Learning via ECN-based Gradient Compression," in *Proc. 21st International Conference on Network and Service Management (CNSM)*, 2025.

[4] C. Camerota, M. Babaiasl, N. Shakoor, and F. Esposito, "Load Profile Generation for Robust Optimization: A Stochastic Approach Based on Conditional Probability Approximation," in *EEEIC International Conference on Environment and Electrical Engineering*, 2025.

[5] C. Camerota, M. Babaiasl, N. Shakoor, and F. Esposito, "Early Detection and Management of Crop Pests Using Quadruped Robotic Systems: Challenges and Open Problems," in *IEEE C4CPS Workshop on Converged Communication, Computing, and Control for Next-Generation CPS*, 2025.

[6] A. Tsutsumi, C. Camerota, F. Esposito, S. M. Park, T. Taylor, and S. Miyata, "Forecasting Pediatric Trauma Volumes: Insights From a Retrospective Study Using Machine Learning," *Journal of Surgical Research*, vol. 306, pp. 33–42, 2025.

[7] C. Camerota, T. Pecorella, and A. D. Bagdanov, "The intrinsic convenience of federated learning in malware IoT detection," in *Proc. 20th International Conference on Network and Service Management (CNSM)*, pp. 1–7, 2024.

[8] C. Camerota, L. Pappone, T. Pecorella, and F. Esposito, "Addressing Data Security in IoT: Minimum Sample Size and Denoising Diffusion Models for Improved Malware Detection," in *Proc. 20th International Conference on Network and Service Management (CNSM)*, pp. 1–7, 2024.

[9] G. Donati, M. Basso, M. Mugnaini, and C. Camerota, "A Convolutional Neural Network to Locate Unbalance in Turbomachinery Supported by AMBs," in *IEEE MetroInd4.0 & IoT*, pp. 274–279, 2024.

[10] G. Donati, M. Basso, G. A. Manduzio, M. Mugnaini, T. Pecorella, and C. Camerota, "A convolutional neural network for electrical fault recognition in active magnetic bearing systems," *Sensors*, vol. 23, no. 16, p. 7023, 2023.

[11] P. Bellini, C. Camerota, and P. Nesi, "Automating Heterogeneous IoT Device Networks from Multiple Brokers with Multiple Data Models," in *Global IoT Summit*, pp. 226–238, 2022.