Leonardo Peroni

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My main interest is in videostreaming systems, focusing on integrating machine learning methodologies to improve *networking performance* and enhance *quality of experience*.

Education

University Carlos III of Madrid	Nov. 2020 – Feb. 2025 (expected)
Ph.D., Telematic Engineering	*Madrid Spain*

Provisional thesis title: User Empowerment in Adaptive Video Streaming over Best-Effort Networks

Polytechnic University of Turin	Oct. 2015 – Apr. 2018
M.Sc., Mechatronic Engineering	*Turin Italy - 110L/110*

Thesis: Machine learning framework for classification of mild cognitive impairment and high resolution multispectral-multitemporal satellite images

The Sapienza University of Rome	Sep. 2011 – May. 2015
B.Sc., Informatic and Automatic Engineering	*Rome Italy - 110L/110*

Thesis: Lab-on-chip integrated systems for thermal control in biomolecular analysis

Professional Experience

Research assistant	March 2020 – September 2024
IMDEA Networks Institute	*Madrid Spain*

- Video streaming QoE and influence factors, ABR algorithms, encodings (AVC, HEVC, LCEVC...)
- Classical machine learning, deep learning, reinforcement leanring, active learning
- Spirit project and requirements for other project

Technology consultant	September 2018 – February 2020
Hesplora s.r.l.	*Florence Italy*

- Italian postal service (IT sector): from September 2019 to February 2020
- Acqua4.0 project: infrastructure developing for monitoring and reduction of loss in water pipeline of Tuscany (http://www.acqua40.it/)
  - search, wrangling, cleaning, visualization and analysis of strongly etherogeneous and non structurated data (DEM, litology, Sar interferometry, terrain and pipeline data...)
  - KPI developing for risk of failure in water pipeline
  - Use of classical unsupervised learning technique: k-means,dbscan, pca
- Apollon project: infrastructure developing for monitoring environmental pollution (http://apollon-project.it/)
  - Implementation of cloud IoT platform for indoor pollution monitoring devices
  - Develop of services for IoT data pipeline

Journal Publications

[2] **L. Peroni** and, S. Gorinsky **"An End-to-End Pipeline Perspective on Video Streaming in Best-Effort Networks: A Survey and Tutorial"**, *arXiv*, preprint arXiv:2403.05192, March 2024 *(Under revision in ACM CSUR)*

[1] **L. Peroni**, S. Gorinsky, F. Tashtarian, and C. Timmerer, **"Empowerment of Atypical Viewers via Low-Effort Personalized Modeling of Video Streaming Quality"**, *Proceedings of the ACM on Networking*, 1(CoNEXT3), pp. 1-27, December 2023

Conference Publications

[4] **L. Peroni**, S. Gorinsky, and F. Tashtarian, **"In-Band Quality Notification from Users to ISPs"**, *IEEE CloudNet 2024*, Rio de Janeiro, Brazil, November 2024 *(Early accept)*

[3] **L. Peroni** and S. Gorinsky, **"Quality of Experience in Video Streaming: Status Quo, Pitfalls, and Guidelines"**, *COMSNETS 2024*, pp. 1-10, Bengaluru, India, January 2024

[2] **L. Peroni**, S. Gorinsky, F. Tashtarian, and C. Timmerer, **"Empowerment of Atypical Viewers via Low-Effort Personalized Modeling of Video Streaming Quality"**, *ACM CoNEXT 2023* (published as journal article [1] in the Proceedings of the ACM on Networking), pp. 1-27, Paris, France, December 2023

[1] A. Khaliq, **L. Peroni**, and M. Chiaberge, **"Land cover and crop classification using multitemporal sentinel-2 images based on crops phenological cycle"**, *IEEE EESMS 2018*, pp. 1–5, Salerno, Italy, June 2018

International Experience

Visiting Research Student	March 2023 – August 2023
Korea Advanced Institute of Science & Technology (KAIST)	*Daejeon, South Korea*
Erasmus Extra UE	September 2016 – February 2017
Beihang University	*Beijing, China*
English 4 U PET certification	July 2010 – July 2010
Sprachcaffe Languages Plus	*Brighton, United Kingdom*

Awards & Honors

Available, Functional, and Reproduced ACM Artifact Badges	2023

for paper "Empowerment of Atypical Viewers via Low-Effort Personalized Modeling of Video Streaming Quality", among three papers selected for presentation in the Artifacts session, *ACM CoNEXT 2023*

Talks

Empowerment of Atypical Viewers via Low-Effort Personalized Modeling of Video Streaming Quality	December 2023
	Paris, France
ACM CoNext	
Empowerment of Atypical Viewers via Low-Effort Personalized Modeling of Video Streaming Quality	December 2023
	Madrid, Spain
IMDEA-UC3M Research Seminar Series	
Video-streaming research: an end-to-end pipeline perspective	December 2021
IMDEA-UC3M Research Seminar Series	*Madrid, Spain*

Grants

SIGCOMM Travel Grant	August 2022
SIGCOMM	*Amsterdam, Netherlands*

Professional Activities

ACM MM	October 2024
Reviewer, Melbourne Convention and Exhibition Centre	*Melbourne, Australia*
IEEE SECON	September 2023
Volunteer, University Carlos III of Madrid	*Madrid, Spain*
IEEE ICNP	October 2020
Volunteer, IMDEA Networks Institute	*Madrid, Spain*

Language Skills

Italian: mother tongue, **English:** very good, **Spanish:** very good, **Chinese:** very basic

Computer Skills

Programming languages: Python, JavaScript, Matlab & Simulink, Java, SQL, Arduino IDE
Video tools: FFmpeg, GPAC, dash.js
Protocols: MPEG-DASH, WebRTC, QUIC, RTMP, HTTP, TCP
Python ML/DL libraries: Tensorflow, Keras, Scikit-learn, Pytorch
AWS Cloud Platform: EC2, IoT Core, Lambda, Dynamo db, MTurk, DeepLens, Rekognition
Geospatial data analysis tools: Qgis, Snap
Process mining tools: Disco, Apromore, Prom