

DR. ANTONIO DI MAIO

Postdoctoral Researcher in Data-Driven Mobile Networked Systems

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EXPERIENCE

Established Researcher II

ETH Zürich, Switzerland (Sep '25 - Aug '29)

Self-funded position under the SNSF Ambizione 2023 project "Efficient Distributed Intelligent Applications in Mobile-Network Dynamics (eDIAMOND)". I plan to hire one PhD student and one Scientific Assistant.

Advanced Postdoctoral Research Associate (~ ER I)

University of Bern, Switzerland (Sep '24 - Aug '25)

- **Decentralized Learning on Resource-Constrained, Mobile Networked Systems:** Federated, Split, Gossip, Personalized, and Secure Learning
- Cooperative **Radio-Map** Reconstruction from PHY-layer Sampling
- Entanglement Distribution Optimization in **Mobile Quantum Networks**

Lecturer

University of Bern, Switzerland (Sep '20 - Aug '25)

- **Quantum Mobile Networking Seminars** (Feb '23 - Jul '23): I acquired funding for setting up an international, inter-university, fully-online, seminar series joining Quantum Communications and Mobile Networking, with 20+ student participants. From scratch, I created an international consortium of 13 professors from 8 universities to be the seminar's advising committee, sparking collaborations among participants. (📺 VIDEO)
- **Bachelor courses** every semester: Operating Systems, Network Security, Computer Networks, and Seminars in Advanced Topics in Computer Networks (~70 students/semester)

Early Postdoctoral Research Associate

University of Bern, Switzerland (Sep '20 - Aug '24)

- **Distributed Learning over Resource-Constrained and Mobile Networked Systems:** Federated, Split, Gossip, Personalized, and Secure Learning
- AI-based **Admission and Placement** for Network Slices and Functions
- Secure Cooperative Inference for **Position and Trajectory Prediction**

Postdoctoral Researcher

University of Luxembourg (Jul '20 - Aug '20)

Analytical and Data-driven Wireless Network Performance Modeling and Optimization at Physical, MAC, and Network Layers

Lecturer of Decision Making

Middlesex University, London (Feb '18 - Aug '18)

Managed, designed, taught, and graded the course on behavioral and mathematical models that shape decision processes

Computer Vision Expert & Java Developer

Mobile-Technologies Co., Ltd., Bangkok, Thailand (Oct '15 - Apr '16)

Computer-vision-based aliveness detection for customer registration and biometric verification on mobile platforms

HIGHLIGHTS



Awards

- Two prizes: **Recognition of Outstanding Teaching Achievements** and **Faculty Teaching Award for Young Scientists** for the Seminar "Quantum Mobile Networks", ranked in the top 11 courses at the University of Bern in the Spring Semester 2023.
- Best paper awards at **NOMS 2024** and **WoWMoM 2023**.



Student Supervision

- Co-advisor for **11 PhD students**. Supervised **5 BSc** and **2 MSc Theses**, among which:
- BSc: "A Reinforcement-Learning-Based FANET Placement Strategy against Jamming Attacks" (2025).
 - BSc: "Throughput-and Cost-aware Node Relocation for MANET Resiliency Under Jamming Attacks" (2023), published at **MedComNet2024**.
 - BSc: "On the Application of OpenFlow-based SDN in Wireless Vehicular Ad Hoc Networks" (2018)



Science Communication

Published 10 journal and 28 conference articles. Given 10+ guest lectures (Luxembourg, Bern, St Gallen, Neuchâtel) and one keynote speech (UFPA, Brazil) on Wireless Networking and Artificial Intelligence.



Editor, Reviewer, and TPC member

230+ verified reviews for Conference and Journal articles (IEEE TVT, TSNM, TSNE, Elsevier). Editing 3 Journals. 20+ TPC memberships. 4+ Technical Sessions chaired



Inter-University Doctoral Schools

- I lead the organization of
- **BENEFRI Summer School**
 - 2021, Leissigen, Switzerland
 - 2024, Brienz, Switzerland
 - **CUSO Winter School**
 - 2024, Champéry, CH (📺 VIDEO)

PROJECTS & OUTCOMES

Efficient Distributed Intelligent Applications in Mobile-Network Dynamics (eDIAMOND)

Swiss National Science Foundation (Sep '25 - Aug '29), ETH Zurich

I **independently** acquired **987 kCHF** in funding to develop data-driven and analytical methods for modeling wireless communication and distributing large-model artificial intelligence over large-scale Internet of Things. I will **develop** adaptive, IoT-native methods for model architecture design. I will **design** optimal, analytical and data-driven methods for multi-objective, throughput-delay-aware allocation of data flows in multi-hop mobile wireless networks.

Service-Oriented 6G Network Architecture for Distributed, Intelligent, and Sustainable Cloud-Native Communication Systems (6G-CLOUD)

EU HORIZON-JU-SNS (Jan '24 - Jun '26), University of Bern

495 kCHF in funding for developing a native-AI 6G architecture for cloud-continuum and management operation framework. Total grant: €4.26M for 13 academic and industrial partners. I **developed** data-driven methods for virtual network function deployment on network infrastructure, and self-organizing decentralized orchestration of distributed radio access network controllers.

Federated Learning for Psychological Monitoring using Smartphone Sensing Data (SENTI)

University of Bern DigiK Funds (Jan '24 - Dec '27)

I co-acquired **900 kCHF** in funding for privacy-preserving distributed prediction system to monitor humans' mental well-being. I **developed** a large-scale, communication-efficient, federated-learning client selection strategy with theoretical guarantees.

Digital Twins for Sustainable Infrastructure in Alpine Tourism

University of Bern DigiK Funds (Jan '24 - Dec '27)

I contributed to acquire **500 kCHF** for applying data-driven methods to plan and improve touristic infrastructures and preventing over-tourism through developing digital twins of sites and users' mobility by fusing wireless data, bookings, and traffic measurements.

Networking for Immersive Communications (NICO)

Swiss National Science Foundation (Mar '22 - Feb '26)

I contributed to acquire **699 kCHF** in funding for improving networked immersive systems by enhancing viewport prediction, network caching, and opportunistic communications. I **developed** an analytical and data-driven communication-efficient decentralized personalized learning method for Mobile Virtual Reality Networks.

Context and Content Aware Communications for QoS Support in VANETs (CONTACT)

Luxembourg Fonds National de Recherche (Apr '16 - Sep '19)

I **integrated** Software-Defined Networking, Named Data Networking and Floating Content paradigms to enhance vehicular networks. I **created** a graph-based, congestion-avoiding routing algorithm for Software-Defined Vehicular Networks (SDVNs). I **created** a graph-based content dissemination mechanism for cooperative SDVNs, improving user fairness and data throughput while reducing frame collisions over multiple wireless channels

RESEARCH AREAS

- Mobile, Ad Hoc, Constrained Networks
- MAC Modeling and Optimization
- Decentralized and Distributed Systems
- Federated, Split, Gossip, Personalized Learning

EDUCATION

Ph.D. in Telecommunications and Computer Engineering

at SnT - Interdisciplinary Centre for Security, Reliability, and Trust

📅 Apr '16 - Jun '20 📍 Uni Luxembourg

- Funded by FNR CORE 2015 "CONTACT" project (see left column). I developed novel Software-Defined-Networking methods to enhance inter-vehicular routing and content dissemination.

Visiting MSc Student @ UMT Lab (Prof. Krüger)

DFKI - German Research Centre for Artificial Intelligence

📅 Apr '15 - Sep '15 📍 Saarbrücken, Germany

M.Eng. in Computer Science

Final Grade: **110/110, Summa cum laude (GPA: 29.5/30)**

📅 Nov '13 - Feb '16 📍 Polytechnic of Bari, Italy

- Thesis in Human-Machine Interaction: "Design of an application for tracking a human target with a drone". First work that studies target tracking without color information and light (📺 VIDEO)
- **2016 Valedictorian Scholarship:** Money prize for the highest GPA
- Google DevFest Hackathon Winner 2014: "HealthWear - A smartwatch detecting falls and abnormal health parameters"

B.Eng. in Computer Science

Final Grade: **110/110, Summa cum laude (GPA: 28.7/30)**

📅 Sep '09 - Jul '13 📍 Polytechnic of Bari, Italy

- Thesis in Image Processing and Artificial Vision: "Design and implementation of an eye blink detection Android application". Used SVM/LBP Classifiers, Integral Projection Functions, and Hu Moments to detect eye blinks (📺 VIDEO)

Diploma of Computer Engineering

Final Grade: **100/100 Honors (Top 0.02% high school student)**

📅 Sep '05 - Jul '09 📍 Andria, Italy