

DR. ANTONIO DI MAIO

Postdoctoral Researcher in Data-Driven Mobile Networked Systems

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Citations: 487

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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 MedCom-Net2024.
- 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