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www.romainjacob.net 🌐

Romain Jacob

Senior Researcher

Sustainable Networking expert – Open Science enthusiast

*Academic age as defined by ETH

4.3 years of postdoctoral activities*

Experience

2022–current

Senior Researcher
Networked Systems Group. Head: Prof. Laurent Vanbever
ETH Zurich, Switzerland

2020–2022

Postdoctoral Researcher
Networked Systems Group. Head: Prof. Laurent Vanbever
ETH Zurich, Switzerland

2015–2020

Doctoral Student and Scientific Assistant
Computer Engineering group. Head: Prof. Lothar Thiele
ETH Zurich, Switzerland

2013–2014

Visiting Scholar
Vehicle Dynamics and Control laboratory. Head: Prof. Karl J. Hedrick†
University of California (UC) Berkeley, CA, USA

2012

Research Intern
Automation research group. Supervisor: Prof. Martin Fabian
Chalmers University of Technology, Göteborg, Sweden

Education

2015–2019

Doctorate in Computer Science
"Leveraging Synchronous Transmissions for the
Design of Real-time Wireless Cyber-Physical System"
Supervisor: Prof. Lothar Thiele
ETH Zurich, Switzerland

2011–2014

Master in "Engineering of Complex Systems"
Advisor: Prof. Jean-Jacques Lesage
École Normale Superieure (ENS) de Cachan, France

2012–2013

Agrégation in Industrial Science—Mechanics major
French national exam for higher education teachers

Master in "Faculty Training for Higher Education"
École Normale Superieure (ENS) de Cachan, France

2010–2011

Bachelor in Mechanical Engineering
Université Pierre et Marie Curie (UPMC, Paris 6), France

Last update   February 20, 2025

Research grants

2024–2025

Practical energy savings with rate adaptation in today's computer networks
EFCL project, 200kCHF

Invited talks

The Internet is getting emptier; that's a sustainability problem.

Seminar	Feb. 2025	Nokia Sustainability Fridays, Online
Conference	Dec. 2024	GreenIO, Paris, France
Conference	Oct. 2024	JCSA – AFNIC, Paris, France

Characterization and Benchmarking Methodology for Power in Networking Devices

Conference	Nov. 2024	IETF 121, Dublin, Ireland

Practical energy savings knobs in ISP networks and beyond

Seminar	Dec. 2024	System's group seminar series, ETH Zürich, Switzerland
Seminar	Oct. 2024	Microsoft Azure networking team, Online
Seminar	Sep. 2024	Orange sustainability team, Online

Greening of the Internet - The Big Picture

Dagstuhl	Sep. 2024	Seminar 24402

A Sleep Study for ISP Networks: Evaluating Link Sleeping on Real World Data

Podcast	July 2024	Environment Variables, Online
Workshop	June 2024	Switch Network WG, Brig, Switzerland

Does rate adaptation at daily timescales make sense?

Workshop	Sep. 2023	Carbon Aware Networks Workshop, Oxford, UK

The Internet of Tomorrow Must Sleep More and Grow Old

Conference	Dec. 2023	RIPE 87, Rome, Italy
Podcast	Sep. 2022	Environment Variables, Online
Dagstuhl	Aug. 2022	Seminar 22341

Research replicability in networking research

Seminar	May 2022	Working Group Reproducibility, CNRS, Online

Supporting Replicable Networking Experiments with TriScale

Tutorial	May 2021	4th CPS-IoTBench Workshop, Online
Tutorial	Aug. 2021	ACM SIGCOMM, Online

IoTBench: Reproducibility challenge in wireless networking research

Invited talk	Oct. 2020	5th CROSS Symposium, Online

Confidence in experimental evaluations: Time to do better than "Believe me, it's true!"

Invited talk	Feb. 2020	EWSN Conference, Lyon, France

IoTBench—Past, present, and future of a community-driven benchmarking initiative

Invited talk	Apr. 2019	CPS-IoTBench Workshop, Montréal, Canada

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Dagstuhl seminars

2024

Greening Networking: Toward a Net Zero Internet
Seminar 24402

Power, Energy, and Carbon-Aware Computing on Heterogeneous Systems
Seminar 24351

2022

Power and Energy-Aware Computing on Heterogeneous Systems
Seminar 22341

Teaching

Advanced Topics in Communication Networks

Co-lecturer 2023–2025 ETH Zürich
Coordinator 2020–2024

Computer Networks

Guest lecturer 2024–2025 ETH Zürich (Prof. Perrig)

Green Computing

Guest lecturer 2025 ETH Zürich (Prof. Friedman)

Communication Networks

Co-lecturer 2024 Ashesi University (Ghana)

Seminar in Sustainable Networking

Lecturer 2023–2024 ETH Zürich

Seminar in Communication Networks

Co-lecturer 2021–2022 ETH Zürich

Discrete Event Systems

Co-lecturer 2021 ETH Zürich

Embedded Systems

Teaching assistant 2017–2019 ETH Zürich

Low-Power System Design

Teaching assistant 2017–2019 ETH Zürich

Discrete Event Systems

Teaching assistant 2015–2017 ETH Zürich

Kinematics, kinetics, and dynamics

Lecturer 2014 Institute of Technology of Tremblay-en-France (France)

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Supervision – Doctoral level

Past and current doctoral students I (co-)supervise(d).
Those I am the main responsible for are marked with ●

Ongoing ●

Weiran Wang

Lukas Röllin

2024

Alexander Dietmüller
Adaptive Network Traffic Modeling

2023

Tobias Bühler
Improving Internet Path Property Inference

Supervision – Undergraduate level

Master [M] semester [S] and bachelor theses [B] I (co-)supervised.
Projects that led to a peer-reviewed publication are marked with ●

2024 [B]

Maurice Béhanzin
Reducing power conversion losses in modern PSUs

[S]

Andreas Hunziker
Collecting Storing and Serving of Network Power Data

[B]

Jonathan Chung
Automated power measurement for network devices:
Collecting data reliably made simple?

[M] ●

Jackie Lim
Power Modelling Framework for Network Switches

2023 [B]

Simon Englert, Leonard Wechsler
Data Visualization of Switzerland's Research and Education Network

[M] ●

Lukas Röllin
How fast can it wake up? Putting Link Sleeping into Practice

[S] ●

Jackie Lim
How much does it burn? Profiling the energy model of a Tofino switch

2022 [S]

Steven Peter
Building and Monitoring a Solar-Powered Web Server

[B]

Andri Furrer
Greening the Internet by putting networks to sleep

[M]

Siddhant Ray
Advancing Packet-Level Traffic Predictions with Transformers

[B]

Teodora Rajkovic
21st Century Data Visualization for Enhancing Student Learning

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	[S]	Lukas Röllin
		Advancing Predictions for Video Streaming with Transformers
2021	[S]	Zhengqing Liu
		Replication of 'Data Driven Connectivity' in P4
	[S]	Kévin Selänne
		Process Mining for Networking
	[B]	Fredrik Nestaas
		In Search of Network Shifts
2020	[M]	Raphael Schnider
		Pushing the Internet to the Edge
2019	[M]	Anna-Brit Schaper
	●	Truth be told: Benchmarking BLE and IEEE 802.15.4
	[S]	Jan Müller
		Low-Power Network Design: Work Hard, Play Hard (I)
	[S]	Anna-Brit Schaper
		Low-Power Network Design: Work Hard, Play Hard (II)
	[S]	Antonios Koskinas
		Is low-power wireless networking a reproducible science?
2018	[M]	Jonathan Candel
		Dynamic Range Low-power Wireless Protocols for Environmental Monitoring
	[M]	Jonas Bächli
	●	Creating a Flexible Middleware for Low-Power Flooding Protocols
2017	[S]	Andreas Biri
		Unleashing the Potential of Real-Time Internet of Things
	[S]	Alexander Dietmüller
		Fault-Tolerance Mechanisms for Glossy-Based Wireless Communication Networks
	[S]	Fabian Walter
		Real-Time Network Functions for the Internet of Things
2016	[S]	Jonas Bächli
		A Protocol Gateway for the Internet of Things

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Scientific service

(co-) Editor-in-Chief	2021–2024	JSys
Member	2024–present	HotCarbon Steering Committee
	2022	ORCID Researcher Advisory Council
(co-) Organizer	2019–2020	CPSIoTBench Workshop
PC Member	2024–2025	HotCarbon Workshop
	2024	TMA
	2021–2022	ECRTS (Artifact Evaluation)
	2021–2022	JSys (Artifact Evaluation)
	2020–2022	ACM SIGCOMM (Artifact Evaluation)
	2020	IEEE RTSS (Artifact Evaluation)
	2020	DATA Workshop
	2020	FAILSAFE Workshop
Journal reviewer	2020	PeerJ Computer Science
	2019	MDPI Information
	2018–2020	MDPI Sensors
	2017	Information Sciences
Publicity chair	2024–2025	HotCarbon Workshop
	2018	CPSBench Workshop
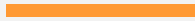
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University service

Co-president	2017–2021	VMITET (Representative of the scientific staff at D-ITET)
Committee member	2019–2020	Student panel for faculty hiring committee
Workshop facilitator	2019	ETH Symposium on Doctoral Supervision
Board member	2016–2018	AVETH (Leader of the Politics Team during 2016–2017)
Representative	2017–2020	■ D-ITET Teaching Commission ■ D-ITET Department Conference ■ International Forum, ETH Zurich
	2014–2015	Scientific Council, ENS Cachan
	2011–2013	Student Council, ENS Cachan
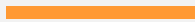
Distinctions and awards

2024	Best Paper Award, HotCarbon
2022	BenchCouncil Distinguished Doctoral Dissertation Award
2019	Best Paper Award, ACM ICCPS
	Best Demo Award, ACM/IEEE IPSN
	Future Prize, second prize, Ewald Marquardt Foundation
2017	Finalist, Famelab Switzerland
2016	Finalist, "My Thesis in 180s" competition organized by Nano-Tera.ch
2014	Ranked 1st at the Agrégation in Industrial Science (national exam)

Languages

Native	French
Fluent	English
Basic proficiency (B1)	German