Research topics	Design of novel video-on-demand (VoD) techniques over advanced multiuser downlink transmission frameworks in next-generation wireless systems
Position (M/F)	Post-Doctoral
Reference offer	CS/PE/MIMO/072025
Research Department	Communication Systems (CS)
Publication date	07/07/2025
Start date	ASAP
Duration	Fixed Term Contract [18 months maximum]

Description

EURECOM invites applications for a **postdoctoral researcher** to join a cutting-edge project focused on designing, optimizing, and experimentally validating a **novel, groundbreaking technique for delivering video-on-demand (VoD)** over advanced multiuser downlink transmission frameworks in next-generation wireless systems.
The selected candidate will be at the center of the development of one of the **most powerful and forward-looking communication technologies** currently in progress—designed to push the boundaries of wireless and satellite-based content delivery, cross-layer optimization, and 6G system evolution.
The work will span the complete 5G protocol stack and extend into emerging 6G paradigms, with a focus on both **wireless and wired (CDN-based)** deployments, **cross-layer system design**, and **real-world PoC experimentation**.

Core Responsibilities

- Design and implementation of **PHY-to-application layer adaptations** to support high-efficiency VoD over multiuser downlink frameworks.
- Development and optimization of **modulation, coding**, and **beamforming schemes** to support enhanced traffic aggregation and interference management.
- Integration and extension of protocol functions across **MAC, RLC, PDCP, SDAP, and RRC** layers, tailored to the needs of scalable VoD delivery.
- Full-stack experimentation using **OpenAirInterface (OAI)** and deployment of real-time prototypes at TRL4–TRL6.
- Research and development of protocol and algorithmic adaptations for **satellite communication scenarios**, taking into account latency, link variability, and interoperability.
- Cross-layer traffic modeling, simulation, and validation under **realistic VoD workloads** and dynamic network conditions.
- Contribution to standardization discussions, including preparation of technical content for submission to **3GPP** and related working groups.

Desired Qualifications

We are looking for candidates who combine strong theoretical foundations with practical system development skills.

Required

- PhD in Electrical Engineering, Telecommunications, Computer Science, or a closely related field.
- Expertise in **communication theory**, including advanced techniques in modulation, coding, MIMO systems, and interference management.
- Ability to **develop and adapt mathematically-inspired algorithms**, with a focus on real-world system constraints.
- Proficiency in programming (e.g., C/C++, Python, MATLAB).
- Strong research record with peer-reviewed publications.

Preferred

- Experience with 5G technologies and familiarity with the OAI stack or other software-defined radio (SDR) environments.
- Experience with VoD delivery systems, content caching, and traffic management in wired or wireless contexts.
- Exposure to standardization processes (e.g., 3GPP, ETSI).
- Hands-on experimentation with real-time network setups or traffic emulation.

How to Apply
Please send the following materials to elia@eurecom.fr, wagner@eurecom.fr and secretariat@eurecom.fr with the reference CS/PE/MIMO/072025:

- A detailed CV
- Representative publications (or links)
- Contact details of 2 or more references.

About EURECOM
EURECOM is a major Engineering School and a Research Center in digital sciences founded in 1991 as a consortium in the international technology park of Sophia Antipolis. The IMT is a founding member of the GIE. Teaching and research activities are organized around 3 promising fields: digital security, communication systems and Data Science.

EURECOM has a staff of 150 (researchers and support teams) and welcomes 400 international students on the Campus Sophia Tech, the largest information science and technology campus of the region. EURECOM enjoys a privileged geographical environment on the French Riviera (Côte d'Azur), between sea and mountains, at the heart of a dynamic and multidisciplinary ecosystem that promotes high-level scientific and technological innovation.

Social advantages
- International and multicultural environment
- Attractive salary - Corporate saving plans
- Private retirement plan (executive, employer participation of 100%)
- Employee profit sharing policy
- Company health insurance (mutuelle) with high levels of guarantees for the whole family (employer participation of 60%)
- Restaurant vouchers (employer contribution of 60%)

EURECOM is one of Europe's leading engineering schools specializing in digital technologies. It is located in the heart of the Côte d'Azur, in Europe's Silicon Valley (Tech Park Sophia-Antipolis). EURECOM's research teams work in an international, multicultural environment.

EURECOM has a dynamic policy in terms of inclusion and quality of life at work. We are committed to diversity and give equal consideration to all applicants, without discrimination. Above all, we look for competence and team spirit.

All our positions are open to people with disabilities. EURECOM has set up a disability advisor to provide support and advice, organize accommodation and make positive commitments to personal integration.

As part of its gender equality plan, EURECOM encourages gender diversity within its teams. As part of our gender equality action plan, we encourage male applications for administrative positions, traditionally held by women, and female applications for IT and research positions, traditionally held by men.

EURECOM is taking positive action as part of its CSR policy. A CSR representative oversees EURECOM's CSR and energy transition policies (electric charging stations, solar panels, waste sorting, etc.).

Web site EURECOM: https://www.eurecom.fr/fr/eurecom/presentation
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