Real-time Network Digital Twin App and Data Science project

Implementing data science dashboard for IP traffic monitoring in Open-RAN 5G networks

Born and raised in B2B connectivity, we combine innovation, expertise, and incredible talent into (mobile) connectivity solutions that will grow both businesses and society. 0G to 5G. Citymesh is the European leader and expert in the construction of private 4G & 5G networks and WiFi as a Service, with +50 MPNs deployed.

Context of the internship

Within the Citymesh research team we are exploring the next generation of mobile communications where third-party developers can create custom apps that run at the edge or cloud, and can be used to optimise streaming resources, enhance voice calls or support low latency content delivery networks.

For this to become an operational reality much much more data and orchestration is needed before mobile network operators can trust the networks and software developed by third parties that control resources in their networks - that do not disrupt the experiences of other users.

The goal: Research and Innovation

This internship concerns the 'Network Digital Twin' concept for Open-RAN based 5G networks. You will be responsible to work directly with our research team of developers and engineers to assist in carrying out 3 highly valuable test cases.

The result will inform our business decisions on the digital twin concept and the capabilities of the Open-RAN softwares on the market today.

At the end of the internship you will have an in-depth understanding on the operations and management of a 5G network, solid experience with a challenging data science project and working in a multidisciplinary team.

Expected Results

- Investigate existing market solutions
- Implement a proof-of-concept automation engine to estimate network and service quality
- Develop a web based dashboard that can
    - Present KPI metrics of the 5G system and estimators
    - Intelligently filter key root-cause factors for IT Ops
    - Evaluate the system with drone/robotics video streams (high bandwidth, low jitter), teleoperation (low latency downlink control commands) and log streaming

Our approach

We strive to provide comprehensive coaching and furnish students with supplementary resources and training as required. Our interns benefit from the constant support of a dedicated mentor who can readily offer assistance. Joining us means being part of a vibrant and youthful team, working in a cutting-edge technological environment.

Student profile

Background and Education:

- Undergraduate or graduate student pursuing a degree in Computer Science, Information Security, Network Engineering, or a related field.
- Strong academic record with coursework in networking, cybersecurity, and programming.

Technical Skills:

- Proficiency in programming languages such as Python, JavaScript and SQL
- Familiarity with networking concepts, including TCP/IP, routing, and wireless protocols.
- Knowledge of data analysis, statistics (preferred but optional).

Skills and Qualities:

- Strong problem-solving and analytical skills.
- Attention to detail and a systematic approach to tasks.
- Ability to work independently and as part of a team.
- Good communication skills to convey technical concepts effectively.
- Eagerness to learn and adapt to new technologies and challenges.
- Commitment to ethical behaviour, as this role involves monitoring network activity and data.

Interested?

Contact Jens Buysse (jens.buysse@citymesh.com and celine.vileyn@citymesh.com) with your CV. We have other internships available as well! Don't hesitate to contact us.