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Summary

I am a Communications Engineer specializing in wireless communication systems measurements. I prefer working on real equipment rather than doing simulations / models. My research studies how applications and protocols perform over 4G/5G technologies (sub-6Ghz, mmWave, NB-IoT, LTE-M). Currently, I lead a long-term measurement study of Norwegian mobile broadband networks. These measurements form the basis for an annual report on the stability and performance of these networks requested by the local government. Further, I have experience on IoT devices, as well as industrial and academic 5G testbeds. My past projects include 5G-VINNI, eCOUSIN and MONROE.

Experience

Vocational

Simula Metropolitan Center for Digital Engineering (SimulaMet) **Oslo, Norway**
Research Scientist 2/2022–Present

Research on the reliability of mobile networks in Norway. / Simula's P.I. of the RAKSHA project working on risk assessment, attack simulation, evaluation, and demonstration of defensive solutions for NGCC.

Simula Metropolitan Center for Digital Engineering (SimulaMet) **Oslo, Norway**
Postdoctoral Fellow 10/2018–12/2021

5G / NB-IoT experimentation, analytics and KPI verification. Participation in the European project 5G-VINNI.

Simula Research Laboratory **Oslo, Norway**
PhD Intern 12/2017–02/2018

Evaluate CDN performance over mobile networks.

IMDEA Networks Institute **Madrid, Spain**
Research assistant 10/2012–09/2017

Participation in the FP7 Framework program "eCOUSIN".

Korea Advanced Institute of Science and Technology - KAIST **Daejeon, Republic of Korea**
Visiting PhD student 1/2017–7/2017

Group project: develop an application that monitors the context of a mobile phone in order to minimize unnecessary radio operations.

Spotify **Stockholm, Sweden**
PhD Intern 9/2014–11/2014

Development of a passive mobile bandwidth classification tool.

Hellenic Army (Greek Army) **Athens, Greece**
Web developer / IT support 10/2011–7/2012

Web-developer: Maintenance of the main web site of the Greek army (www.army.gr)

IT support: School of Military Informatics for Senior Officers. Maintenance and administration of more than 100 PCs.

Miscellaneous

NGO: “Board of European Students Of Technology”

IT support

Athens, Greece

12/2009–09/2011

Private tutor

Athens, Greece

2006–2008

Private tutor in mathematics and physics for high school students

Hellenic Statistical Authority (El. Stat.)

Enumerator

Athens, Greece

10/2005–10/2007

Information collection by interviews

Education

University Carlos III of Madrid

Madrid, Spain

PhD student,

10/2013–09/2018

Research in the areas of “Mobile Networks”, “Network Optimization” and “Content Distribution Networks”.

Supervisor: Professor Joerg Widmer.

University Carlos III of Madrid

Madrid, Spain

Master in Telematics engineering, 9.48/10 (top of class)

10/2012–10/2013

Track: Communication networks and services.

Diploma Thesis title: “Practical challenges of network optimized stored video delivery”.

Supervisor: Professor Joerg Widmer -Cosupervisor: Professor Albert Banchs (Grade 10/10)

National Technical University of Athens (NTUA)

Athens, Greece

5-year Diploma in Electrical and Computer Engineering, 8.40/10 (top 10%)

9/2005–2/2011

Direction of specialization: Telecommunications

Major: Electromagnetic waves, Telecommunication systems and Computer Networks

Minor: Energy Conversion, High Voltages and Industry Applications

Diploma Thesis title: “Real time media streaming over peer to peer Networks”

Supervisor: Professor Theodora Varvarigou (Grade 10/10)

2nd Arsakeio High School of Psychiko

Athens, Greece

High School, 19.6/20

1999–2005

Certificates awarded: Certificates of Excellence by the Greek Ministry of Education (6 in total)

Computer skills

Scripting: Python, Bash, Matlab

Languages: C, C++ (NS3), SQL

Operating systems: Linux

Markup: \LaTeX , HTML, CSS

Languages

Greek: Mother tongue

English: Fluent

Cambridge proficiency-level C2, Grade: c

German: Basic

STAATZERTIFIKAT ÜBER SPRACHKENNTNISSE-level A2, Grade: Pass

Spanish: Basic

Basic conversation

Current Projects

Title: RAKSHA: 5G Security for Critical Communications

Description:

- Risk assessment, attack simulation, evaluation, and demonstration of defensive solutions for NGCC.

Title: *Robuste Nett*

Description:

- Long-Term measurement study of the stability and performance of Norwegian mobile broadband networks.
- Academic experiments on how applications and services perform over commercial mobile networks.
- Yearly report submitted to the Norwegian Ministry of Local Government and Regional Development.

Past Projects

Title: *5G-VINNI: 5G Verticals INNOvation Infrastructure*

Description:

- Testing and validation of experimental 5G testbed facility sites.
- Support across the project and for the vertical projects that will be supported by the E2E facility.

Title: *MONROE: Measuring Mobile Broadband Networks in Europe*

Description:

- Distributed testbed platform measuring commercial mobile networks. Presence in 4 countries including roaming.
- Storage and analysis of large datasets collected from operational mobile broadband networks via large scale end-user measurement campaigns.

Title: *eCOUSIN: enhanced COntent distribUtion with Social Information*

Description:

- Research on Network optimization / economics, based on information gathered from the context of the users and especially "online social networks".
- Simulations of mobile networks using NS-3 and C++.
- Author of deliverables and articles published in mainstream magazines.

Awards and Grants

- Student Travel Grant, **ACM IMC 2017**.
- Student Travel Grant, **IFIP WMNC 2015**.
- **TEAM-MUNDUS Scholarship**. Economic support for the internship at KAIST.

Academic Volunteer Work

- Session chair at **IEEE/ACM IWQoS 2022**.
- Reviewer for several IEEE and ACM conferences and Journals, such as INFOCOM and Journal on Selected Areas in Communications.

Publications

- [1] F. Michelinakis, H. Doroud, A. Razaghpanah, A. Lutu, N. Vallina-Rodriguez, P. Gill, and J. Widmer, "The cloud that runs the mobile internet: A measurement study of mobile cloud services," in *IEEE INFOCOM*, (Honolulu, HI, USA), April 2018.
- [2] F. Michelinakis, N. Bui, G. Fioravantti, J. Widmer, F. Kaup, and D. Hausheer, "Lightweight capacity measurements for mobile networks," *Computer Communications*, vol. 84, pp. 73–83, 2016.
- [3] N. Bui, F. Michelinakis, and J. Widmer, "Fine-grained lte radio link estimation for mobile phones," in *WoWMoM*, 2017.
- [4] N. Bui, F. Michelinakis, and J. Widmer, "Fine-grained lte radio link estimation for mobile phones," *Pervasive and Mobile Computing*, 2018.
- [5] F. Michelinakis, G. Kreitz, R. Petrocco, B. Zhang, and J. Widmer, "Passive mobile bandwidth classification using short lived tcp connections," in *WMNC*, 2015.
- [6] F. Kaup, F. Michelinakis, N. Bui, J. Widmer, K. Wac, and D. Hausheer, "Behind the NAT – A measurement based evaluation of cellular service quality," in *CNSM*, 2015.
- [7] F. Michelinakis, N. Bui, G. Fioravantti, J. Widmer, F. Kaup, and D. Hausheer, "Lightweight mobile bandwidth availability measurement," in *IFIP Networking Conference*, May 2015.
- [8] N. Bui, F. Michelinakis, and J. Widmer, "A model for throughput prediction for mobile users," in *European Wireless*, (Barcelona, Spain), May 2014.
- [9] M. Xie, W. Y. Poe, Y. Wang, A. J. González, A. Elmokashfi, J. A. P. Rodrigues, and F. Michelinakis, "Towards closed loop 5g service assurance architecture for network slices as a service," 2019.
- [10] F. Kaup, F. Michelinakis, N. Bui, J. Widmer, K. Wac, and D. Hausheer, "Assessing the implications of cellular network performance on mobile content access," *Transactions on Network and Service Management*, 2016.
- [11] M. Xie, J. S. Pujol-Roig, F. Michelinakis, T. Dreibholz, C. Guerrero, A. Gallego Sanchez, W. Yi Poe, Y. Wang, and A. M. Elmokashfi, "AI-Driven Closed-Loop Service Assurance with Service Exposures," in *2020 European Conference on Networks and Communications (EuCNC)*, pp. 265–270, 2020.
- [12] M. Xie, F. Michelinakis, T. Dreibholz, J. S. Pujol-Roig, S. Malacarne, S. Majumdar, W. Yi Poe, and A. M. Elmokashfi, "An Exposed Closed-Loop Model for Customer-Driven Service Assurance Automation," in *2021 European Conference on Networks and Communications (EuCNC)*, 2021.
- [13] M. Marciel, F. Michelinakis, R. Fanou, and P. J. Muñoz-Merino, "Enhancements to google course builder: Assessments visualisation, youtube events collector and dummy data generator," in *SINTICE*, 2013.
- [14] F. Michelinakis, A. S. Al-selwi, M. Capuzzo, A. Zanella, K. Mahmood, and A. Elmokashfi, "Dissecting Energy Consumption of NB-IoT Devices Empirically," *IEEE Internet of Things Journal*, 2020.

- [15] O. Nassef, T. Mahmoodi, F. Michelinakis, K. Mahmood, and A. Elmokashfi, "Optimising Performance for NB-IoT UE Devices through Data Driven Models," *Journal of Sensor and Actuator Networks*, vol. 10, no. 1, 2021.
- [16] A. M. Elmokashfi, A. Kvalbein, A. S. Al-Selwi, F. I. Michelinakis, and T. Dreibholz, "Norske mobilnett i 2021 – Tilstandsrapport fra Centre for Resilient Networks and Applications," tech. rep., Oslo/Norway, 2022.
- [17] F. Michelinakis, J. S. Pujol-Roig, S. Malacarne, M. Xie, T. Dreibholz, S. Majumdar, W. Y. Poe, G. Patounas, C. Guerrero, A. Elmokashfi, and V. Theodorou, "AI Anomaly Detection for Cloudified Mobile Core Architectures," *IEEE Transactions on Network and Service Management*, pp. 1–1, 2022.
- [18] S. Mohebi, F. Michelinakis, A. Elmokashfi, O. Grøndalen, K. Mahmood, and A. Zanella, "Sectors, Beams and Environmental Impact on the Performance of Commercial 5G mmWave Cells: An Empirical Study," *IEEE Access*, vol. 10, pp. 133309–133323, 2022.

Extracurricular Activities

- Active member of the non-governmental organisation "Board of European Students of Technology" (3/2010-09/2011). Responsibilities: member of the fund raising team, main organizer of an event, organizer at several other events.
- Various medals and honours at school and local sport events (long jump, 50m race, 100m race, 600m race, 4X100m relay race).

Hobbies/Interests

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| ○ Sports | ○ Traveling |
| ○ Photography | ○ Folk dances |
| ○ Participation in technology-related and mathematical/computer programming challenges message boards | |