Sokol Kosta
Associate Professor
Department of Electronic Systems
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Edge Computing and Networking
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Research profile

Research Interests: Edge Computing, AI Acceleration, Mobile cloud computing, Analysis and modeling of mobile social networks.

ACADEMIC EMPLOYMENTS

07/2025 -	**Professor Promotion Programme** – Dept. of Electronic Systems, Aalborg University, Denmark
2020 - 2025	**Associate Professor** – Dept. of Electronic Systems, Aalborg University, Denmark
2016 - 2020	**Assistant Professor** – Dept. of Electronic Systems, Aalborg University, Denmark
2015 - 2016	**Visiting Postdoc** – Department of Computer Science & Engineering, The Hong Kong University of Science and Technology (HKUST), Hong Kong
2013 - 2016	**Postdoc** – Department of Computer Science, Sapienza University of Rome, Italy

EDUCATION / QUALIFICATIONS

2019	**University Pedagogy for Assistant Professors**, *Aalborg University*, Denmark
2018 – 2028	**Italian National Scientific Qualification for Associate Professor**, *The Italian Ministry of Education, Universities and Research (MIUR),* Italy
2009 - 2013	**PhD –** *Department of Computer Science*, Sapienza University of Rome, Italy; *Supervisor: Prof. Alessandro Mei*
2010 – 2011	**PhD Internship (6 months)** – *Deutsche Telekom Laboratories*, Berlin, Germany
2009	**MSc** – *Department of Computer Science*, Sapienza University of Rome, Italy
2006	**BSc** – *Department of Computer Science*, Sapienza University of Rome, Italy

PROJECT INVOLVEMENT AND MANAGEMENT EXPERIENCE

2025 - 2027	**Thomas B. Thriges Fond (TBTF)** *"QUCISAFE: Quantum-resistant Critical Infrastructure through PQC and QKD integration in the Cloud-Edge-IoT Continuum"*, DKK 2.6M. *My Role:* Coordinator, Main supervisor of 1 Postdoc
2025 - 2026	**Danish National Defence Technology Centre (NFC)** *"MARESEC: Autonomous Mapping for Surveillance of Critical Maritime Infrastructure"*, 5 partners, DKK 1.17M. *My Role:* PI at AAU, Main supervisor of 3 Student Assistants
2022 – 2026	**EU Horizon Europe KDT JU** *"CLEVER: Collaborative edge-cLoud continuum and Embedded AI for a Visionary industry of thE futuRe"*, 20 partners, EUR 46M. *My Role:* PI at AAU, Main supervisor of 1 Postdoc
2022 – 2026	**EU Horizon Europe MSCA Doctoral Network** *"QUARC: Quantum resistant communications: Advance Learning in applied PQC Training"* 5 partners, 8 PhD students, 4 years, Sep. 2022 – Sep. 2026 My Role: Local Co-PI at Aalborg University, Main supervisor of 3 PhD students
2022 – 2027	**EU Horizon Europe** *"I3LUNG: Integrative science, Intelligent data platform for Individualized LUNG cancer care with Immunotherapy"* 16 partners, EUR 10M, 5 years, July 2022 – July 2027 My Role: Local PI at Aalborg University
2020 - 2024	**EU H2020 MSCA ITN** *"IoTalentum: provide high-level training in the field of next generation IoT to a new generation of ESRs (Early-Stage Researchers)"* 11 partners, 15 PhD students, 4 years, Sep. 2020 – Sep. 2024 My Role: Local Co-PI at Aalborg University, Main supervisor of 2 PhD students
2020 - 2022	**EU H2020 Widespread Twinning** *"INCOMING: INnovation and excellence in massive-scale COMmunications and information processING"* 4 partners, EUR ~800K, 3 years, Sep. 2019 – Sep. 2022 My Role: Local Co-PI at Aalborg University
2020	**CoMonSENSE:** *COastal MONitoring SENSor system*- Funded by the Danish Innovation Network for Environmental Technologies' (Inno-MT) 3 partners, EUR ~200K, 9 months, Jan. 2020 – Sep. 2020 My Role: PI at Aalborg University
2018 - 2020	**EU Erasmus+** *"FGPE: Framework for Gamified Programming Education"* 4 partners, EUR ~400K, 3 years, 2018 – 2021 My Role: Local PI at Aalborg University
2015 - 2017	**EU H2020** *"RAPID: Heterogeneous Secure Multi-Level Remote Acceleration Service for Low-Power Integrated Systems and Devices"* 7 partners, EUR 2.1 M, 2015 - Dec. 2017 My Role: Project Manager at Sapienza University of Rome, leading 2 out of 8 work packages (WP3 and WP4), designing technical decisions, writing deliverables, participating in meetings and EU project forums.
2012 - 2015	**EU STREP FP7** *"TROPIC: Distributed computing, storage and radio resource allocation over cooperative femtocells"* 10 partners, EUR 4.5+ M, Sep. 2012 - Apr. 2015 My Role: Research assistant – Designed and implemented solutions for computation offloading; Designed and implemented working demo for the final project review.
2010 - 2013	**EU STREP FP7** *"IoT-A: Internet of Things Architecture"* 20 partners, EUR 18+ M, Sep. 2010 - Nov. 2013 My Role: Research assistant – Designed and implemented demo for project review.

SUPERVISION OF PHD STUDENTS

Muhammad Waleed	*Main supervisor, CMI, Department of Electronic Systems*, Aalborg University, Copenhagen, Denmark; ITN IoTalentum project, since 2021
Kenneth Azumah	*Co-supervisor, CMI, Department of Electronic Systems*, Aalborg University, Copenhagen, Denmark, 2017 – 2022
Dimitris Chatzopoulous	*External co-supervisor, Department of Computer Science & Engineering*, HKUST, Hong Kong, 2016 – 2017
Francisco Airton Pereira	*External co-supervisor, Department of Computer Science*, Sapienza University of Rome, Italy (visiting PhD student), 2015 – 2016

MAJOR INTERNATIONAL COLLABORATIONS

Pan Hui, *Nokia Chair in Data Science* and *Professor*, Department of Computer Science, University of Helsinki, Finland

Iakovos Mavroidis, *Researcher*, Found. of Research and Technology Hellas, Greece

Alessandro Mei, *Professor* and *Head of Department*, Department of Computer Science, Sapienza University of Rome, Italy

Raffaele Montella, *Tenured Assistant Professor*, Department of Science and Technologies, University of Naples "Parthenope", Italy

Paulo R. Martins Maciel, *Professor,* Federal University of Pernambuco, Brazil

FELLOWSHIPS AND GRANTS

2018 - 2022	5 times (yearly), **EUopSTART - Grant for EU Horizon Proposal Preparation**, by the *Danish Ministry of Higher Education and Science*, PI, EUR 7K, Denmark.
2017 - 2018	**Project Grant**, by *Switzerland Federal Department of Foreign Affairs*, "Monitoring River Water Quality using Crowdsourcing and Cloud", PI, EUR 13K, Albania.
2013 - 2015	3 times (early), **Research Starting Grant**, *Sapienza University of Rome*. PI, EUR 4K, Italy.
2010 - 2012	**Excellent Albanian Researchers Grant**, by the *Albanian Ministry of Education and Science*, PI, EUR 20K, Albania.

AWARDS AND PRIZES

2024	**IEEE INFOCOM Test-of-Time Paper Award**
2018	**Best Paper Award –** IDCS '18
2018	**Best Demo Award –** IEEE Percom '18
2016	**Best Paper Award –** Procedia Computer Science '16
2013	**Best Demo Award –** IEEE SECON '13
2013	**Best Demo Award –** IEEE INFOCOM '13
2013	**Student Travel Grant –** IEEE INFOCOM '13
2012	**Best PhD student paper award**, *CS Dept., Sapienza University of Rome*, Italy.

TEACHING ACTIVITIES

Fall 2022	Course responsible – **Algorithms**, Aalborg University, Denmark
2021 – 2022	Course co-responsible – **Internetwork Programming**, Aalborg University, Denmark
2020 – 2021	Course responsible – **IoT and Cloud Security**, Aalborg University, Denmark
2019	Course responsible – **Distributed Systems**, Aalborg University, Denmark
2016 – 2020	Course responsible – **Object Oriented Programming I / II,** Aalborg University, Denmark
2016 – 2020	Guest Lecturer – **Cloud Computing / Databases**, Aalborg University, Denmark
2015 – 2016	Guest Lecturer – **Computer Networks / Computer Architecture**, HKUST
2012 – 2013	Teaching Assistant – **Computer Architecture / Databases**, Sapienza University, Italy

SCIENTIFIC ACTIVITIES

2025
Research Council of Norway, Centre for Research-based Innovation – SFI V – Phase 2, *Panel Member (evaluator for 5 proposals)*

2022
Guest Editor – *Special Issue "Internet of Things, Sensing and Cloud Computing" of MDPI Sensors (Journal).*
TPC Member – *ICA3PP '22: The 22nd International Conference on Algorithms and Architectures for Parallel Processing,* Copenhagen, Denmark, 10 – 12 October 2022.
TPC Member – *ICPEC '22: 3rd International Computer Programming Education Conference,* Portugal, 2 – 3 June 2022.
Co-organizer – *MAMHYP '22: Sixth Workshop on Models, Algorithms and Methodologies for Hybrid Parallelism in new HPC Systems,* Gdansk, Poland, September 11-14, 2022.

2021
TPC Chair – *IJCAI '21: 30th International Joint Conference on Artificial Intelligence,* Montreal, Canada, 19 – 26 August 2021.
Chair of PhD assessment committee – *PhD candidate Kaspar Hageman, Aalborg University, Denmark.*
TPC Member – *ICPEC '21: 2nd International Computer Programming Education Conference, Portugal.*

2020
Guest Editor – *HHAMA '20: Special Issue on "High-end Heterogeneous Architectures, Methodologies, and Algorithms",* SI of Concurrency and Computation: Practice and Expertise.
TPC Member – *ICCCN '20: The 29th International Conference on Computer Communications and Networks,* Honolulu, Hawaii, USA, August 3-6, 2020.
TPC Member – *IEEE VTC2020-Spring '20, "IEEE Vehicular Technology Conference",* Antwerp, Belgium, May 25-28, 2020.

2019
TPC Member – *International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP '19)",* Melbourne, Australia, December 9-11, 2019.
TPC Member – *International Workshop on Context-Awareness for Multi-Device Pervasive and Mobile Computing"* (IEEE PerCrowd '19, in conjunction with IEEE PerCom'19), Kyoto, Japan, March 11-15, 2019.
TPC Chair – *CMI Conference in Cybersecurity and Privacy,* Copenhagen, Denmark, November 28-29, 2019.
Co-chair – *MAMHYP '19: Fifth Workshop on Models, Algorithms and Methodologies for Hybrid Parallelism in new HPC Systems,* Bialystok, Poland, Sep. 8-11, 2019.
Program chair – *12th International Conference on Internet and Distributed Computing Systems (IDCS),* Naples, Italy, Oct. 10-12, 2019.

2018
Editor – *MATHHCE '18: Models, Algorithms and Tools for Highly Heterogeneous Computing Environments,* SI of Concurrency and Computation: Practice and Experience.
TPC Member – *IEEE PerCrowd '18: International Workshop on Context-Awareness for Multi-Device Pervasive and Mobile Computing* (in conjunction with IEEE PerCom '18), Athens, Greece, March 19, 2018.

2017
Guest Editor – *MATHHCE '17: Models, Algorithms and Tools for Highly Heterogeneous Computing Environments (),* special issue of Concurrency and Computation: Practice and Experience.
TPC Member - *ICA3PP '17,* Track "Internet of Things and Cyber-Physical-Social Computing".

2016
TPC Member – *IEEE ICC '16: IEEE International Conference on Communications.*

REVIEWER

IEEE Transactions on Mobile Computing (TMC), IEEE Transactions on Cloud Computing (TCC), Journal of Parallel and Distributed Computing, ACM SIGCOMM Computer Communication Review (SIGCOMM CCR), Pervasive and Mobile Computing, Entropy, IEEE INFOCOM, IEEE ICC, IEEE SECON

SELECTED PUBLICATIONS

Journal articles

- Chatzopoulos, D., Fernandez, C. B., **Kosta, S.**, & Hui, P. (2020). Offloading Computations to Mobile Devices and Cloudlets via an Upgraded NFC Communication Protocol. *IEEE Transactions on Mobile Computing*, *19*(3), 640-653. https://doi.org/10.1109/TMC.2019.2899093

- Azumah, KK, Sørensen, LT, Montella, R, **Kosta, S.** Process mining-constrained scheduling in the hybrid cloud. *Concurrency Computation Practice and Experience,* 2020;e6025. https://doi.org/10.1002/cpe.6025

- Silva, F. A., **Kosta, S.**, Rodrigues, M., Oliveira, D., Maciel, T., Mei, A., & Maciel, P. M. (2018). Mobile Cloud Performance Evaluation Using Stochastic Models. *IEEE Transactions on Mobile Computing*, *17*(5), 1134-1147. https://doi.org/10.1109/TMC.2017.2749577

- da Silva Pinheiro, T. F., Silva, F. A., Fé, I., **Kosta, S.**, & Maciel, P. M. (2018). Performance prediction for supporting mobile applications' offloading. *Journal of Supercomputing*, *74*(8), 4060-4103. https://doi.org/10.1007/s11227-018-2414-6

- Montella, R., **Kosta, S.**, Oro, D., Vera, J., Fernández, C., Palmieri, C., Di Luccio, D., Giunta, G., Lapegna, M., & Laccetti, G. (2017). Accelerating Linux and Android applications on low-power devices through remote GPGPU offloading. *Concurrency and Computation: Practice & Experience*, *29*(24), [e4286]. https://doi.org/10.1002/cpe.4286

Conference proceedings

- Pinheiro, T., Airton Silva, F., Fe, I., **Kosta, S.**, & Maciel, P. (2019). Performance and Data Traffic Analysis of Mobile Cloud Environments. In *2018 IEEE International Conference on Systems, Man, and Cybernetics (SMC)* (pp. 4100-4105). [8616692] IEEE Signal Processing Society. https://doi.org/10.1109/SMC.2018.00695

- Mentone, A., Di Luccio, D., Landolfi, L., **Kosta, S.**, & Montella, R. (2019). CUDA virtualization and remoting for GPGPU based acceleration offloading at the edge. In *The 12th International Conference on Internet and Distributed Computing Systems* (Vol. 11874, pp. 414-423). Springer. Lecture Notes in Computer Science https://doi.org/10.1007/978-3-030-34914-1_39

- Barbera, M. V., **Kosta, S.**, Mei, A., Perta, V. C., & Stefa, J. (2014). Mobile offloading in the wild: Findings and lessons learned through a real-life experiment with a new cloud-aware system. In *Proceedings - IEEE INFOCOM* (pp. 2355-2363). https://doi.org/10.1109/INFOCOM.2014.6848180

- Barbera, M. V., **Kosta, S.**, Mei, A., & Stefa, J. (2013). To offload or not to offload? the bandwidth and energy costs of mobile cloud computing. In *Proceedings - IEEE INFOCOM* (pp. 1285-1293). https://doi.org/10.1109/INFCOM.2013.6566921

- **Kosta, S.**, Aucinas, A., Hui, P., Mortier, R., & Zhang, X. (2012). ThinkAir: Dynamic resource allocation and parallel execution in the cloud for mobile code offloading. In *INFOCOM, 2012 Proceedings IEEE* (pp. 945-953). IEEE Infocom. Proceedings https://doi.org/10.1109/INFCOM.2012.6195845