ALESSIO SACCO

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I'm currently Assistant Professor at Politecnico di Torino, Italy. I obtained my Ph.D. in Computer Engineering from Politecnico di Torino in 2022, where I also received the Master of Science in 2018. My research interests include architecture and protocols for network management; implementation and design of cloud computing applications; algorithms and protocols for service-based architecture, such as Software Defined Networks (SDN), used in conjunction with Machine Learning algorithms.

EXPERIENCE

01/2023 – CURRENT
ASSISTANT PROFESSOR, POLITECNICO DI TORINO, ITALY
Teaching activity in networking and computing courses. Research on intent-based networking and cognitive nertworks.

03/2022 – 1/2023
RESEARCH FELLOW, POLITECNICO DI TORINO, ITALY
Researching duties on computer networking, Machine Learning, and network softwarization.

01/2022 – 05/2022
VISITING PROFESSOR, SAINT LOUIS UNIVERSITY, USA
Teaching activity for the course "CSCI 1060 - Scientific Programming" in the Spring semester 2022.

06/2022
PH.D. DEFENSE, POLITECNICO DI TORINO, ITALY
Computer and Control Engineering with the title "Quality and policy assurance in critical distributed systems". Advisor Marchetto G.

03/2019 – 06/2019
PH.D. VISITING STUDENT, SAINT LOUIS UNIVERSITY, USA
Abroad period during my Ph.D., development of new research activities, which has led to new publications in international journals and conferences.

09/2017 – 03/2018
EXTERNAL RESEARCHER, SAINT LOUIS UNIVERSITY, USA
Thesis work focused on cutting-edge solutions for low-latency systems. The work has been presented as "LiveMicro" to HotEdge '19 conference.

INTERNATIONAL ROLES

Member of the Editorial Board:
- *American Journal of Networks and Communications* from 2020 to August 2023 (ISSN 2326-8964)

Guest Editor:
- Electronics (S: Networks), Special Issue: *"New Insight into Network Virtualization and Management"* (ISSN 2079-9292)

Funding Member of ComSoc SIG:
- QSCSIG: IEEE SIG on Qualitative Communication and Semantic communication https://mmc.committees.comsoc.org/interest-groups/qscsig/

TPC Co-chair:
- ENS 2023. IEEE 2nd International Workshop on Edge Network Softwarization (ENS 2023)

Organizing Committee Member:
- NetSoft 2023. Tutorial Co-chair of IEEE International Conference on Metaverse Computing, Networking and Applications (IEEE NetSoft 2023)

TPC Member:
- NetSoft 2023. IEEE International Conference on Metaverse Computing, Networking and Applications (IEEE NetSoft 2023)
- 6G-SQSC 2023. IEEE First Workshop on 6G Enablers: Satellite, Qualitative and Semantic Communications, co-located with IEEE ICNP 2023
- TAISEN 2023. IEEE First International Workshop on Trust in AI, Services and Networking, co-located with IEEE ICNP 2023
- MetaCom 2023. IEEE International Conference on Metaverse Computing, Networking and Applications (IEEE MetaCom 2023)
- NFV-SDN 2022. 7th IEEE Conference on Network Functions Virtualization and Software-Defined Networking (IEEE NFV-SDN 2022)
- SecSoft 2022. 4th International Workshop on Cyber-Security in Software-defined and Virtualized Infrastructures (SecSoft) co-located with NetSoft 2022.
- IFIP Networking 2022 WKSHPS NI. The 4th International Workshop on Network Intelligence Network Intelligence 2022 (NI 2022) in conjunction with IFIP Networking 2022

PROJECTS AND FUNDINGS

- *Comcast Innovation Fund recipient*, Improving Network Monitoring Mechanisms by Exploiting ``Whiteness'' of Internet Data and Models. 2023
- *European-funded Project*, FLUIDOS, Flexible, scaLable and secUre decentralIzeD Operating System. Task leader T4.1. 2022-2025
- *European-funded Project*, DESIRE, Distributed Learning for Resilient Virtual Network Management at Scale. Task leader T1 and T3. 2022

SELECTED PUBLICATIONS

- Alessio Sacco, Flavio Esposito and Guido Marchetto. "Restoring Application Traffic of Latency-Sensitive Networked Systems using Adversarial Autoencoders" in IEEE Transactions on Network and Service Management (TNSM), vol. 19, no. 3, pp. 2521-2535, July 2022.

- Ons Aouedi, Alessio Sacco, Kandaraj Piamrat and Guido Marchetto. "Handling Privacy-Sensitive Medical Data With Federated Learning: Challenges and Future Directions" in IEEE Journal of Biomedical and Health Informatics (J-BHI), vol. 27, no. 2, pp. 790-803, June 2022.

- Alessio Sacco, Flavio Esposito, Guido Marchetto and Paolo Montuschi. "A Self-Learning Strategy for Task Offloading in UAV Networks" in IEEE Transactions on Vehicular Technology (TVT), vol. 71, no. 4, pp. 4301-4311, April 2022.

- Alessio Sacco, Matteo Flocco, Flavio Esposito and Guido Marchetto. "Owl: Congestion Control with Partially Invisible Networks via Reinforcement Learning" in Proc. 2021 IEEE International Conference on Computer Communications (IEEE INFOCOM), 10-13 May 2021, Online Event.

- Alessio Sacco, Flavio Esposito and Guido Marchetto. "Resource Inference for Sustainable and Responsive Task Offloading in Challenged Edge Networks" in IEEE Transactions on Green Communications and Networking (TGCN), vol. 5, no. 3, pp. 1114-1127, September 2021.

- Alessio Sacco, Flavio Esposito, Guido Marchetto and Paolo Montuschi. "Sustainable Task Offloading in UAV Networks via Multi-Agent Reinforcement Learning" in IEEE Transactions on Vehicular Technology (TVT), vol. 7, no. 5, pp. 5003-5015, April 2021.

- Alessio Sacco, Matteo Flocco, Flavio Esposito and Guido Marchetto. "Supporting Sustainable Virtual Network Mutations with Mystique" in IEEE Transactions on Network and Service Management (TNSM), vol.18, no.3, pp. 2714-2727, February 2021.

- Alessio Sacco, Flavio Esposito, Guido Marchetto, Grant Kolar, and Kate Schwetye. "On Edge Computing for Remote Pathology Consultations and Computations" in IEEE Journal of Biomedical and Health Informatics (J-BHI), 24 (9), 2523 – 2534, July 2020.

- Alessio Sacco, Matteo Flocco, Flavio Esposito and Guido Marchetto. "An Architecture for Adaptive Task Planning in Support of IoT-based Machine Learning Applications for Disaster Scenarios" in Computer Communication, 160, 769-778, July 2020.

REVIEWER ACTIVITIES

I served as Reviewer in a large number of journals, such as IEEE International Conference on Computer Communications (INFOCOM), IEEE/ACM Transaction on Networking (ToN), IEEE Transactions on Network and Service Management (TNSM), IEEE Transactions on Vehicular Technology (TVT), IEEE Communications Magazine (Com Mag), IEEE Transactions on Emerging Topics in Computing (TETC), IEEE Transactions on Wireless Communications (TWC), Future Generation Computer Systems (FGCS), Elsevier Computer Communication, Elsevier Computer Networks, ACM Computer Communication Review (CCR), Internet Technology Letters (ITL). In addition to the conferences where I served as TPC member, I was also involved as reviewer in other workshops and conferences, such as Workshop on Serverless Computing (WoSC), Security and Communication Networks, IEEE Conference on Fog and Mobile Edge Computing (FMEC), IEEE Workshop on Advances in Slicing for Softwarized Infrastructures (S4SI).

INTERNATIONAL CONFERENCES ACTIVITIES

I took part to several international meetings and conferences, including IEEE INFOCOM 2021, ACM SIGCOMM 2021, IEEE ICC 2021, IEEE International Conference on Cloud Networking (Cloudnet 2019 and Cloudnet 2020), ACM CoNEXT 2019 and CoNEXT 2020, IEEE International Workshop on Factory Communication Systems (WFCS 2020), IEEE CCNC 2023, IEEE Mediterranean Communication and Computer Networking Conference (MedComNet 2020), Pathology Informatics Summit (PI Summit 2019), IEEE Conference on Network Softwarization (NetSoft 2019, NetSoft 2020, NetSoft 2022), USENIX Workshop on Hot Topics in Edge Computing (HotEdge 2019).

AWARDS

Quality Award at the completion of second and third year of the PhD career from Politecnico di Torino.

Best dissertation Award from Politecnico di Torino.

SKILLS AND INTERESTS

- Network Softwarization and Virtualization
- Machine Learning Algorithms
- Network Protocols

- Edge and Cloud Computing
- Distributed and Consensus Protocols
- Formal Methods and Verification