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Beyond 5G Networks: Strategic Roadmap and R&D Prospects

IEEE Future Networks Distinguished Lecture

A FORUM NUMERICA seminar by

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University of Washington, USA

October 12, 2023

2 pm - 3 pm

[Campus SophiaTech, Templiers](#), room F201

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Abstract:

During 2020-2022, the speaker served as Program Lead for Innovate Beyond 5G, DoD OUSD Office of Research & Engineering, managing an annual portfolio for research and prototyping in support of significant investment by DoD/USG with respect to adopting 5G for the Enterprise and Innovating Beyond (i. e. pushing technology boundaries beyond current 5G implementation). Accordingly, the talk will be divided into 2 components:

- An initial brief Overview of DoD 5G-to-xG R&D strategy (towards enabling future Integrated Tactical Network concepts based on emerging 5G New Radio (NR) network features such as direct Device-2-Device (sidelink) modes, non-terrestrial networking, impact of RAN disaggregation and virtualization, dynamic spectrum sharing and management between 5G/B5G and DoD/Federal networks (current emphasis on 3.1-3.45 GHz)

followed by a deeper technical dive into

- Performance aspects of Sidelink Mode-2 enabled ad-hoc networking (such as Cellular V2X) and current status of Integrated Access & Backhaul (IAB), highlighting feature gaps and R&D opportunities.

Finally the talk will conclude with distilling the impacts of the above as potential vectors for 5G+/6G standardization and the importance of creating more diverse national pathways for participation in global standards evolution aiming for national leadership in 6G.

Speaker's Bio:

Sumit Roy received the B. Tech. degree from the Indian Institute of Technology (Kanpur) in 1983, and the M. S. and Ph. D. degrees from the University of California (Santa Barbara), all in Electrical & Comp. Engineering

respectively, as well as an M. A. in Statistics and Applied Probability. He was appointed to Integrated Systems Professor (2014-19) of Electrical & Computer Engineering, Univ. of Washington-Seattle where his research and technology transition interests have included design and evaluation of wireless communication and sensor network systems with an emphasis on 5G & beyond technologies, multi-standard inter-networking and coexistence using software-defined networking approaches. He spent 2001-03 at Intel Wireless Technology Lab as a Senior Researcher engaged in systems architecture and standards development for ultra-wideband systems (Wireless PANs) and next generation high-speed wireless LANs. He has been active in IEEE Communications Society in various roles (journal editor and Distinguished Lecturer) and was elevated to IEEE Fellow (2007) for “contributions to multi-user communications theory and cross-layer design of wireless networking standards”. He served 2 terms as (elected) member of Executive Committee, National Spectrum Consortium dedicated to efficient spectrum sharing between Federal and commercial networks and is the co-author of IEEE TAES 2016 Best paper award for work on Radar-Comm coexistence. He recently served as Program Lead for Innovate Beyond 5G for OUSD R&E within the 5G-to-xG initiative <https://www.cto.mil/5g/> where he helped define and execute a research and prototyping agenda as part of US DoD’s evaluation and adoption of beyond 5G for national defense applications.

FORUM NUMERICA is sponsored by the Academy of Excellence “Networks, Information and Digital Society” of UCA^{JEDI}