ENGLISH VERSION

4

path:
/etc/se

intranet *Inria*

Sumit ROY
DIANA

Je recherche...

(Personne ✓) (Articles ✓) (Fichiers)   Rechercher un contenu, un nom...

INRIA

VIE SCIENTIFIQUE

VIE PRATIQUE

CARRIÈRE & VIE PRO

FORMULAIRES & PROCÉDURES

Ajouter à l'agenda   Imprimer   Envoyer à un ami   Ajouter à mes favoris

Séminaire Diana : Sumit Roy

par Christine FOGGIA , du 9/10/2023 au 9/10/2023

Sumit Roy, *Dept. of Electrical & Comp. Engineering at U. Washington* , Seattle, fera une présentation dans le cadre des séminaires Diana.

La présentation se fera en anglais

Titre :

"Multi Network WiFi Analysis & Optimization via ns-3: An Update"

Résumé :

UW FUNLab is the host/managing entity for WiFi (IEEE 802.11 WLAN) modules within the ns-3 network simulator (www.nsnam.org). In the past decade, WiFi as a technology has grown ambitiously in scale and scope, via evolution from WiFi6 (11ax, Very High T'put) to current WiFi7 (11be, High Efficiency) to next WiFi8 (11bn, Ultra High Reliability) signifying shift to more network-centric design approaches. Specifically, emphasis has shifted to use of WiFi in enterprise or dense hotspot (overlapping networks) scenarios with many new features introduced - decreasing cell sizes, expanded channelization inclusive of dynamic channel bonding, expanded use of MIMO for multiple spatial streams (point-to-point operation) and Multi User operation, OFDMA, coordinated spatial reuse and AP collaboration (to name a few). Consequently, UW ns-3 efforts has been busy in tracking demand from the network performance evaluation community via integration of these new features in ns-3 protocol stack implementation (on one hand) – however these have resulted in escalated run-times for ns-3 simulations due to the inherent complexity of the new PHY/MAC layers on one hand, and the increasing node/network density on the other (for e.g. conformal with TGax defined multi BSS simulation scenarios in [1]).

This talk will provide a status update of ns-3 WiFi model implementations tracking the latest WiFi standards, highlighting -

• development of efficient PHY abstractions (link-to-system mappings) applicable for multi-network simulation
• validation of analytical models for simple multi-BSS network scenarios as a stepping stone to network scaling (more complex/realistic scenarios + increasing network dimensions)
• applications to emerging use cases of WiFi7 networks prioritizing latency sensitive traffic

Finally, we briefly discuss new AI/ML frameworks available within ns-3, notably ns-3-ai for supporting advanced network performance research.

[1] TGax Simulation Scenarios, IEEE 802.11-14/0980r16, Jul 16, 2015 https://mentor.ieee.org/802.11/dcn/14/11-14-0980-16-00ax-simulation-scenarios.docx

Bio

Sumit Roy (Fellow, IEEE 2007) 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 (1985 and 1988 respectively), as well as an M. A. in Statistics and Applied Probability (1988). His previous academic appointments were at the Moore School of Electrical Engineering, University of Pennsylvania, and at the University of Texas, San Antonio. His research interests and technology expertise spans analysis/design and prototyping of wireless communication systems/networks, with an emphasis on various technologies: 5G wireless LANs (802.11ax), 5G New Radio and emerging 5G/beyond 5G standards for vehicular (terrestrial and airborne) networks, multi-standard inter-networking/coexistence and dynamic spectrum access solutions for spectrum sharing. He was elevated to IEEE Fellow by Communications Society for ``contributions to multi-user communications theory and cross-layer design of wireless networking standards" and held the ECE-CoE Integrated Systems Term Professorship (2014-19) at Univ. of Washington in recognition of his international reputation in the area.

He spent 2001-03 on academic leave at Intel Wireless Technology Lab as a Senior Researcher engaged in systems architecture definition and IEEE standards contributions for ultra-wideband systems (Wireless PANs) and next generation high-speed (pre-802.11n) wireless LANs. He served as Science Foundation of Ireland Isaac Walton Fellow during a sabbatical at University College, Dublin (Jan-Jun 2008) and was the

recipient of a Royal Acad. Engineering (UK) Distinguished Visiting Fellowship during summer 2011. During 2014-15, he spent a sabbatical year at Microsoft Research, Bangalore, India, as Erskine Fellow at University of Canterbury, New Zealand and as Short Term Visiting Foreign Expert at Shanghai JiaoTung University. His research has been consistently funded by various US agencies and industrial organizations leading to 10 awarded US patents and his work on Radar-WiFi Spectrum Sharing published in 2016 was recognized by IEEE Trans. Aersosp. Elect. Systems with Barry Carlton (Best Paper) Award. He also currently represents US on the NATO SET-302 Technical Working Group on `Cognitive Radar'.

He continues to be professionally active in IEEE Communications Society (ComSoc) - notably IEEE Future Networks Initiative (https://futurenetworks.ieee.org/) for which he currently serves as Distinguished Lecturer. He has served as Associate Editor for all the major ComSoc publications (IEEE Trans. Communications, IEEE J. Sel. Areas of Communications, IEEE Trans. on Wireless Communications, IEEE Trans. Mobile Computing) at various times and was previously selected for two stints as IEEE ComSoc Distinguished Lecturer (2013-2015, 2017-18). He was also elected to Executive Comm. Member for the National Spectrum Consortium (www.nationalspectrumconsortium.org). Between Sep. 2020-22, he served as Program Lead for Innovate Beyond 5G program within US DoD Office of Under Secy. R&E's 5G-to-xG initiative https://www.cto.mil/5g/ .

IEEE Future Networks
Distinguished Lecture

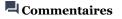## Intervenant(s) :

Sumit Roy

Organisateur(s) :

É quipe Diana

Lieu(x) :

À 14h, salle Euler Bleu, Inria, Sophia Antipolis

Date :

Du 9/10/2023 au 9/10/2023

💬 Commentaires

Aucun commentaire n'a été publié.

Laisser un commentaire