

CROWNCOM 2015

Preface

2015 marks the 10th anniversary of the International Conference on Cognitive Radio-Oriented Wireless Networks (Crowncom). Crowncom 2015 was jointly hosted by Texas A&M University at Qatar and Hamad Bin Khalifa University in Doha, Qatar, April 21–23, 2015. The event was a special occasion to look back at the contribution of Crowncom toward the advancements of cognitive radio technology since its inaugural conference in 2006 in Mykonos, Greece, as well as to look forward to the decades ahead, the ways that cognitive radio technology would like to evolve, and the ways its emerging applications and services can ensure everyone is connected everywhere.

Evolution of cognitive radio technology pertaining to 5G networks was the theme of the 2015 edition of Crowncom. The technical program of Crowncom 2015 was structured to bring academic and industrial researchers together to identify and discuss recent developments, highlight the challenging gaps, and forecast the future trends of cognitive radio technology toward its integration with the 5G network deployment. One of the key topics of the conference was cognition and self-organization in the future networks, which are now widely considered as a striking solution to cope with the future ever-increasing spectra demands. Going beyond the theoretical development and investigation, further practical advances and standardization developments in this technology could provide potential dynamic solutions to cellular traffic congestion problems by exploiting new and underutilized spectral resources. One of the challenging issues that Crowncom 2015 brought forward was to facilitate the heterogeneous demands of users in heterogeneous-type environments — particularly in the 5G network paradigm, where the networks are anticipated to incorporate the provision of high-quality services to users with extremely low delays and consider these requirements without explicit demand from users. Machine-type communications and Internet of Everything are now representing emerging use cases of such ubiquitous connectivity over limited spectra.

Crowncom 2015 strongly advocated that the research community, practitioners, standardization bodies, and developers should collaborate on their research efforts to further align the development initiatives toward the evolution of emerging highly dynamic spectrum access frameworks. The biggest challenge is to design unified cross-layer new network architectures for successful aggregation of licensed and unlicensed spectra, addressing the spectrum scarcity problem for ubiquitous connectivity and preparing the ground for “The Age of the ZetaByte.”

Crowncom 2015 received a large number of submissions, and it was a challenging task to select the best and most relevant meritorious papers to reflect the theme of the 2015 edition of Crowncom. All submissions received high-quality reviews from the Technical Program Committee (TPC) members/reviewers and eventually 66 technical papers (with an acceptance ratio of 56 %) were selected for the technical program of the

conference. The technical program of Crowncom 2015 is the result of the tireless efforts of 14 track chairs, and more than 200 TPC members and reviewers. We are grateful to the track chairs for handling the paper review process and their outstanding efforts, and to the reviewers/TPC for their high-quality evaluations. We offer our sincere gratitude to the Advisory Committee, local Organizing Committee (especially colleagues at Texas A&M University at Qatar), and the Steering Committee members for their insightful guidance. We would like to acknowledge the invaluable support from European Alliance for Innovation and the Qatar National Research Fund for the success of Crowncom 2015.

2015

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Cognitive Radio Oriented Wireless Networks

10th International Conference, CROWNCOM 2015, Doha,

Qatar, April 21-23, 2015, Revised Selected Papers

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2015, XV, 805 p. 341 illus. in color., Softcover

ISBN: 978-3-319-24539-3