



## ***24<sup>th</sup> European Signal Processing Conference Special Sessions***

# **Towards Next-Generation Radar Systems: Adaptivity, Agility, and Reliability**

### *Organizers:*

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Signal processing and design for radar has been of interest to engineers, system theorists and mathematicians in the last couple of decades. In the last decade, however, the radar world has been revolutionized by significant increase in the computational resources; an ongoing revolution with considerable momentum. Such advances are enabling waveform design and processing schemes that can be adaptive (also referred to as cognitive, or smart) while being extremely agile in modifying information collection strategy based on new measurements, and/or modified target or environmental parameters. These novel design and processing schemes have also opened new avenues for enhancing robustness in radar detection/estimation, as well as coexistence in networked environments with limited resources such as a shared spectrum—all leading to increased reliability.

Waveform design and processing for radar has a crucial role particularly in fulfilling the above promises of adaptivity, agility and reliability: the waveform design usually deals with various measures of quality (including detection/estimation and information-theoretic criteria), and moreover, the practical condition that the employed signals must belong to a limited signal set. Such diversity of design metrics and signal constraints lays the ground for many interesting research works in waveform optimization. Additionally, waveform design for next-generation radar is a topic of great interest due to the recent growing demands in increasing the number of antennas/sensors in different radar applications (motivated by recent advances on MIMO radar). Efficient waveform design algorithms are proven to be instrumental in realizing next-generation radar systems. From a similar viewpoint, efficient algorithms for signal processing are necessary once the backscattered signals are collected from the surrounding environment.

This special session provides a venue for discussing recent findings and methodologies related to future radar systems, and is also a meeting place for like-minded professionals with a radar signal processing background.

### **Topics of interest (inclusive):**

- \* Advances in Cognitive Radar
- \* Advances in MIMO Radar and Array Processing
- \* Compressed Sensing Radar
- \* Efficient Algorithms for Waveform Design
- \* Efficient Algorithms for Radar Signal Processing
- \* Radar Design for Spectral Coexistence
- \* Radar Waveform Design and Diversity
- \* Receiver Design and Signal Processing for Next-Generation Radar

Deadline for *invited paper* submissions: ~~Feb. 8, 2016~~ (extended to Feb. 23, 2016)