Call for papers

Workshop on Communication Networks and Power Systems (WCNPS 2022)
Submission deadline: August 15, 2022

Subjects:

- **Internet**: Traffic modeling, protocols, embedded Internet devices, Internet of Things, resource and information management, adaptive QoS provisioning, smart grid communications, emerging technologies.

- **Communication Theory and Techniques**: Channel measurements and modeling, coding and modulation techniques, MIMO, multi-carrier systems and spread spectrum techniques, OFDM technology, space-time coding, diversity techniques, Ultra Wide-Band (UWB) communications, antennas, and propagation.


- **DSP Algorithms and Hardware Implementations**: DSP implementation in hardware, parallel acceleration techniques, DSP algorithms, smart antennas and tracking algorithms, signal separation, and identification.

- **Ranging and Localization**: Indoor positioning technologies and techniques, radio-based positioning systems, ranging and localization algorithms, vehicle/robot navigation, hybrid positioning and communication, RFID localization/communication, and UWB ranging and localization.
Fixed Networks: Optical networks and switching, network architectures and equipment, programmable networks, test-beds and trials, new and enhanced services, network gaming, and peer-to-peer networking.


Multimedia Signal Processing: streamed multimedia applications, algorithms, and implementations, image and video processing, audio and speech processing, error concealment techniques, management of multimedia services, multimedia games.

Unconventional Applications of Signal Processing and Communication Theory: Biosignaling, bioinformatics, medical Imaging, financial modeling, forensic applications, compressive electromagnetic sensing, traffic modeling, and COVID-19 related research and technology.

Big Data: Large-scale systems for text and graph analysis, machine learning, optimization, parallel and distributed data mining (cloud, map-reduce), novel algorithmic, and statistical techniques for big data.

Data Science: Methods for analyzing scientific and business data, social networks, time series; mining sequences, streams, text, web, graphs, rules, patterns, logs data, Spatio-temporal data, biological data; recommender systems, computational advertising, multimedia, finance, bioinformatics.

Foundations: Models and algorithms, asymptotic analysis; model selection, dimensionality reduction, relational/structured learning, matrix and tensor methods, probabilistic and statistical methods; deep learning; manifold learning, classification, clustering, regression, semi-supervised and unsupervised learning; personalization, security and privacy, visualization.

Control and Operation of Power Systems: transient voltage collapse, wide-area control systems (WACS), Wide Area Monitoring Systems (WAMS), experience on monitoring phasor measurement units (PMUs) installed at university’s campuses, transient stability monitoring, system security, integration of AC-DC systems and operation, experience on the operation of large scale systems.

Electromagnetic Transients: digital simulation of continuous systems, transient converter simulation, transient analysis of control systems (TACS), control modeling in PSCAD/EMTDC and ATP, mixed time-frame simulation, frequency-dependent network equivalents, system identification techniques (prony, vector fitting, Kalman filter, unscented transform, etc.).

Non-Conventional Sources of Energy: wind energy, solar energy, energy from biomass, photovoltaic systems, and integration at the conventional power grid, experience with the non-conventional sources of energy systems.

Power System Modelling and Simulation: optimal power flow, power system stability, FACTS devices, HVDC, VSC, wind farm and controls, islanding detection methods, power system restoration dynamics, uncertainty quantification, power system analysis, numerical linear algebra applied to power system modeling and simulation, experience on tool simulations.

Power System Planning: transmission network expansion planning, economic dispatch, environmental cost studies, and their application, advances in simulation and modeling tools & techniques, use of emerging and innovative technologies within the realm of PMUs, FACTS and HVDC, planning and operations with increasing penetration of renewable generation.
• **Power System Protection**: conventional and numerical relaying, phasor estimation algorithms, special protection schemes, the impact of instrument transformers on signal distortions, recent advances on fault localization methods, high impedance fault detection.

• **Power Quality**: harmonic power flow computation, source of harmonics, the impact of harmonics on power quality and losses in power systems, modeling of flicker penetration, solutions to compensate for and reduce harmonics, insertion of the electric car as a new type of load, well-succeeded experiences on power quality.

• **Smart Grids**: smarter electricity systems, economic growth, and environmental goals, technologies, and policies that help to attain global energy and climate goals, future demand and supply, electrification of transport, electric vehicles and plug-in hybrid electric vehicles, electric vehicle charging infrastructure, system and cybersecurity, Information and communications technology integration, advanced metering infrastructure, customer-side systems.

**Paper Submission**

Prospective authors are invited to submit a four to six-page paper including figures and references.

Click here to submit (https://easychair.org/conferences/?conf=wcnps2022)

**Paper Presentation**

The workshop will be held in hybrid mode (partially virtual and partially presential).

**Publication on the IEEE Xplore**

The accepted and presented papers of the WCNPS 2022 will be submitted to publication on the IEEE Xplore (https://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=8240302).