The impact of
Artificial Intelligence (AI)
on communication networks and services

Special issue
Call for papers

Artificial Intelligence (AI) techniques provide ways to expand human intelligence and can generate a large variety of applications that can be beneficial to society and businesses. AI is dominating headlines with many examples of its applications in our current life, such as web search, spam filtering, image recognition, speech understanding and self-driving cars.

The ITU Journal: *ICT Discoveries* invites submissions to explore novel applications of AI techniques that can improve the performance and efficiency of communication infrastructure, systems and components, create new services and ensure optimal user experience. It also encourages contributions on related policy, legal, societal and ethical aspects that can help safely unlock the potential of AI techniques in the field of communication technologies, and foster technical cooperation and digital inclusion.

Communication technologies are expected to become increasingly dynamic and responsive, in order to operate efficiently and at low cost under challenging conditions. Predictive algorithms, computational analysis, reasoning and problem solving techniques, supported by forward-looking policies and a common set of standards, can help this direction.

Keywords:

Artificial Intelligence, expert systems, machine learning, swarm intelligence, neural networks, data mining, fuzzy logic, statistical analysis, cognitive systems, communication technologies, communication networks, wireless communications, security, privacy, Internet of Things, image and video communication, algorithms, monitoring, forecasting, optimization, standards, policy, regulation, ethics, intellectual property rights, technical cooperation.

Deadlines *extended* :
- Paper submission: *16 October 2017*
- Paper acceptance notification: *4 December 2017*

Paper submission:
Submissions must be made electronically using EDAS: Editor's Assistant. Templates and guidelines can be found at: https://itu.int/en/journal/001/Pages/cfp.aspx.

Publication:
As soon as they get accepted, papers will be continuously published on the ITU digital library. They will then be bundled in a yearly volume.

Launch:
The special issue on "The impact of Artificial Intelligence (AI) on communication networks and services" will be announced at ITU Telecom World, in Busan, Republic of Korea, on 25 September 2017.

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Suggested topics (but not limited to):	
Communication networks	• Routing • Network traffic prediction • Traffic identification • Intrusion detection
Wireless communications	• MIMO-OFDM link adaptation • Hardware manipulation • PAPR reduction • Channel estimation and receiver-side processing • Opportunistic spectrum access • MIMO power control • Inter-cell interference control • Localization • Navigation and positioning • Radar, sonar and satellite communication
Communications of autonomous systems	• IP routing • Ad hoc sensor/control networking • Real time machine learning • Energy efficiency • Self-organizing network
Security and privacy	• Spam filtering • Fraud detection • Privacy-preserving machine learning
Smart services, smart infrastructure, Internet of Things (IoT)	• Monitoring and forecasting • Fault prediction and scheduling • Emergency communications/disaster relief
Image and video communication	• Image and video compression • Object tracking • Human action recognition • Image resolution and denoising
5G networks	• Network control and management system • Radio access • Integrated fronthaul and backhaul • Traffic • Fixed/mobile convergence • Virtualization
Law and regulation	• Policy, regulations and standards for AI technologies • Interoperability, testing and certification • Accountability and liability • Transparency • Access to data, access to code • Intellectual property rights • Economic impact • Technology transfer and capacity building
Ethics and values	• Open science and responsible ethical innovation • Human safety, health and security • Freedom, privacy and personal data protection • Anonymity • Bias, integrity, dignity, non-discrimination • Decision making algorithms • Socio-economic impact