



# CALL FOR PAPERS – IEEE ICCI\*CC 2020

Sept. 26-28, 2020, Tsinghua University, Beijing, China



## 19th IEEE International Conference on Cognitive Informatics & Cognitive Computing

[http://www.ucalgary.ca/icci\\_cc/iccicc-20](http://www.ucalgary.ca/icci_cc/iccicc-20) and TU site (TBA)

Paper submission: <https://easychair.org/conferences/?conf=ieeiccicc20>

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### THEME

*Cognitive Informatics, Cognitive & Autonomous Systems, and  
Cognitive Robotics & Machine Learning*

**Cognitive Informatics (CI)** is a transdisciplinary field that studies the internal information processing mechanisms of the brain, the underlying abstract intelligence ( $\alpha I$ ) theories and denotational mathematics, and their engineering applications in cognitive computing, computational intelligence, and cognitive systems. **Cognitive Computing (CC)** is a cutting-edge paradigm of intelligent computing methodologies and systems based on cognitive informatics, which implements computational intelligence by autonomous inferences and perceptions mimicking the mechanisms of the brain. CI and CC not only synergize theories of modern information science, computer science, communication theories, AI, cybernetics, computational intelligence, cognitive science, intelligence science, neuropsychology, brain science, systems science, software science, knowledge science, cognitive robots, cognitive linguistics, and life science, but also promote novel applications in cognitive computers, cognitive communications, computational intelligence, cognitive robots, cognitive systems, and the AI, IT, and software industries.

The IEEE ICCI\*CC series is a flagship conference of its field sponsored by IEEE CS, CIS, and SMC. Following the first 18 successful conferences on Cognitive Informatics and Cognitive Computing (ICCI'02 through ICCI\*CC'19), the 19th IEEE Int'l Conference on Cognitive Informatics and Cognitive Computing (ICCI\*CC'20) focuses on the theme of *Cognitive Informatics, Cognitive & Autonomous Systems, and Cognitive Robotics & Machine Learning*. ICCI\*CC'20 welcomes researchers, practitioners, and graduate students to join the international initiative on cognitive informatics and cognitive computing toward the investigation of cognitive mechanisms and processes of human information processing, and the development of the next generation of cognitive computers and cognitive communication systems.

### SCOPE

Original papers are invited from multidisciplinary, interdisciplinary and transdisciplinary perspectives on subject areas including, but not limited to, the following:

#### Cognitive Informatics

- Informatics models of the brain
- Cognitive processes of the brain
- The cognitive foundation of big data
- Machine consciousness
- Neuroscience foundations of information processing
- Denotational mathematics (DM)
- Cognitive knowledge bases
- Autonomous machine learning
- Neural models of memory
- Internal information processing
- Cognitive sensors and networks
- Cognitive linguistics
- Abstract intelligence ( $\alpha I$ )
- Cognitive information theory
- Cognitive information fusion

#### Cognitive Computing

- Cognitive computers
- Cognitive robotics
- Autonomous Computing
- Knowledge processors
- Cognitive semantics of big data
- Cognitive machine learning
- Knowledge manipulations
- Pattern recognition
- Cognitive agent technologies
- Cognitive inferences
- Computing with words (CWW)
- Cognitive decision theories
- Concept & semantic algebras
- Fuzzy/rough sets/logic
- Affective computing

#### Computational Intelligence

- Cognitive computers
- Cognitive systems
- Cognitive man-machine communication
- Cognitive Internet
- World-Wide Wisdoms (WWW+)
- Mathematical engineering for AI
- Cognitive vehicle systems
- Semantic computing
- Distributed intelligence
- Mathematical models of AI
- Cognitive signal processing
- Cognitive image processing
- Artificial neural nets
- Genetic computing
- MATLAB models of AI

#### Brain Informatics

- Brain-inspired systems
- Neuroinformatics
- Neurological foundations of the brain
- Computational brain science
- Software simulations of the brain
- Brain-system interfaces
- Neurocomputing
- eBrain models
- DNA and genome cognition
- Computational neurology
- Brain image processing
- Bioinformatics
- System models of the brain
- Cognitive process models
- Neurocircuit theories

#### Symbiotic Science & Art

- Foundations of symbiotic systems
- Technology and society
- Symbiotic autonomous systems (SAS)
- Mind, thinking, and rationality
- Value judgement in decision making
- Social implications of AI
- Human-machine cooperation
- Creativity and wisdom
- Emotion and affective computing
- Roles of AI in social organization
- Computational intelligence in art
- Transdisciplinary cognition
- Science and art symbiosis
- Education for sciences vs. arts
- Concrete and abstract sciences

### PAPER SUBMISSION

An electronic copy of papers in PDF format in English should be submitted via <https://easychair.org/conferences/?conf=ieeiccicc20> by June 30, 2020. Full papers should be around 5-8 pages in length in IEEE double column format as posted in the website. Short papers (4-5 pages) that report industrial experience, case studies, work in progress, or graduate students' research may also be considered. The proceedings of ICCI\*CC'20 will be published by IEEE CS Press and indexed by EI, Xplore, and DBLP. Selected papers will be published in special issues in *IEEE Transactions and recommended journal*.

### IMPORTANT DATE

**Full paper submission due:** June 30, 2020  
**Notification of acceptance:** July 31, 2020  
**Camera-ready paper due:** Aug. 15, 2020  
**Conference presentation:** Sept. 26-28, 2020