

## Call for Papers

The main purpose of this conference is to discuss frontier research and realistic applications on cyborg- and bionic systems, which are concerned with hybrid fusion techniques for organic and biomechatronic body parts. Of central interest is the integration of artifacts and technologies like biomorphic actuators and sensors into an effective biocybernetic system. CBS 2019 is sponsored by the IEEE-RAS TC on Cyborgs and Bionic Systems. One of the primary goal is to make an organism restored or enhanced beyond its original biological characteristics. With the rapid development of bionic technologies, biomorphic chips and nanotechnology, we think that cyborgs and bionic systems can assist humans to conquer many limitations such as disease, disabilities, speed, strength, dexterity as well as intelligence. In addition, understanding neural principles, spiking circuits as well as brains and modeling of the functionality of artificial brains linked to sensors, actuators and robots and to organic natural bodies are further topic of interest. Biomorphic chips, spiking neural computation and its underlying learning methodologies form the basic IT-substrate for cyborgs. Ethics and human centered AI approaches are to be discussed.

The topics of interest include, but are not limited to the following:

- Micro/nano biomorphic robotics
- Building brains for robots and cognitive skills
- Bio-cell assembly and tissue fabrication
- Micro bio sensor and actuator fabrication
- Prosthesis and exoskeleton robotics
- Biomorphic computation and chips
- Neuromorphic controls and communication
- Advanced materials neuromorphic sensors
- Rehabilitation robotics
- Cyborg intelligence
- Generative learning
- Cyber-physical bio-system
- Biomimetic robotics
- Perception and Cognition
- Learning
- Translation and mapping of biologic brain principles to cyborg control structures
- Neurorobotics
- Wearable robotics
- Medical surgical robotics
- Regenerative medicine
- Neural-machine interfaces
- Adaptive controls
- Artificial brains
- Biosignal processing

### Important Dates

Full Paper Submission Date: 1st of June 2019  
Notification of Acceptance Date: 15th of July 2019  
Final Paper Submission Date: 31st of July 2019

Paper submission is handled via Paper Plaza:

<http://ras.papercept.net/conferences/>

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