

**Special issue on
“BIO-MIMETIC ARCHITECTURES: SENSING AND CONTROL”**

in IEEE Instrumentation & Measurement Magazine, to be published in December 2022

Bio-mimetics relies on the research and development of new theories and related methodologies relying on a biological, Nature-inspired background. Related architectures of primary interest in this Special Issue cover the field of Bio-inspired solutions and all the principles, mechanisms and devices that could improve the sensing-perception-action loop, also leveraging on efficient control methods. Animal kingdom is full of surprisingly efficient examples in this sense, and all the details in charge of this efficiency are largely unknown. With the aim to build efficient bio-inspired artefacts as a whole, Bio-inspired robots are of main interest, however, bio-robot design and realization involves a large amount of different disciplines which play a relevant role within the main topics of interest for this Special Issue, among which electronic devices, bio-inspired sensing principles, methods and related architectures, bio-inspired solutions for adaptive sensing and perception, sensory related adaptive locomotion control, soft bio-inspired sensing, novel approaches to the sensing-actuation principle.

We invite authors from both industry and academia to submit original research and review articles, targeted to a wide audience that cover bio-inspired solutions, including, but not limited to, the following topic list:

- Design and development of bio-inspired solutions for orientation and navigations;
- Nature-inspired motion in animals and plants;
- Bio-inspired Locomotion control;
- Bio-inspired sensorised articulated limbs or antennae;
- Bio-inspired soft robots;
- Bio-inspired solutions to assistive devices;
- Models of human and animal motion based on bio-relevant feedback;
- Bio-inspired Soft sensors;
- Bio-inspired proprioceptive and exteroceptive sensor devices;
- Bio-inspired Adaptive and learning architectures for the sensorimotor loop;
- Neuro-inspired and embodied solutions for the sensing-perception-action process.

Papers should present to the wide audience a general overview of one scientific subject fitting the Special Issue Topic and really framed in the Instrumentation and Measurement field.

Contributions dealing with Open Problems in IM are very welcome, also presenting challenging and ambitious solutions, which could be developed by current and advanced technology.

While drafting your paper to be submitted to IMM, you are strongly invited:

- to follow authors guidelines, both for styling and contents: <https://iee-ims.org/publication/iee-imm/new-submissions>
- to make sure your article is properly framed in the field of Instrumentation and Measurement. This could be achieved by properly structuring the Review of the State of the Art and motivations of your work.
- to draft the paper for the general I&M audience.

In general, each paper should contain 3500-5000 words, and present 4-6 figures.

When your paper is ready, please submit it completely through
<https://www.editorialmanager.com/IMM/default.aspx>

We expect to receive your paper by April 30th, 2022 to begin the review and production process.
With your submission, please include a cover letter where you specify that this paper is to be submitted to the Special issue on BIO-MIMETIC ARCHITECTURES: SENSING AND CONTROL”.

Schedule:

Full-length paper submission: April 30th, 2022
Revised manuscript due: July 31th, 2022

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