

IET Computers & Digital Techniques

Call for Papers

SPECIAL ISSUE ON:

**Bio-inspired Hardware and Evolvable
Systems**

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A major challenge in the field of bio-inspired hardware and evolvable systems is to effectively and efficiently translate mechanisms from biology to hardware. It is not just about how to implement smart algorithms in hardware, but more about how to make hardware itself smarter by adapting its structure and functionality autonomously in dynamic and uncertain environments. Today's systems are opening up great opportunities for bio-inspired approaches, with new challenges in variability, power consumption, heat dissipation and reliability. System architectures are moving towards system-on-chip, many-core and heterogeneity. This also encourages us to explore other substrates and architectures that could perform more flexible and adaptable computation. This Special Issue addresses these fundamental challenges when taking biological inspiration to hardware implementation. Papers are solicited on their potential for future developments within the field of bio-inspired hardware and evolvable systems

Topics covered include:

- Intrinsic/extrinsic/mixtrinsic evolution
- On-chip bio-inspired approaches and bio-inspired models in hardware
- Autonomous, self-reconfigurable, learning and adaptive systems
- Novel evolvable hardware architectures
- Bio-inspired computing, neuromorphic hardware, robotic systems
- Novel devices and computational materials
- Self-repairing, fault-tolerant systems
- Intrinsic fault-tolerance and resilience
- Bio-inspired electronic circuit synthesis and design optimization
- Genetic representations and genetic models of computing and hardware
- Multi-objective optimization for hardware design
- Bio-inspired approximate computing for energy efficiency, performance and reliability
- Graceful degradation

All papers must be submitted through the journal's Manuscript Central system:
<http://mc.manuscriptcentral.com/iet-cdt>

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