The Nineteenth International Conference on Autonomic and Autonomous Systems
ICAS 2023
March 13, 2023 to March 17, 2023 - Barcelona, Spain

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Registration
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Deadlines

Submission	Dec 15, 2022
Notification	Jan 23, 2023
Registration	Feb 05, 2023
Camera ready	Feb 15, 2023

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Past Events
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Publication

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Authors of selected papers will be invited to submit extended versions to a IARIA Journal/ Industry Proceedings

Affiliated Journals

ICAS 2023

Onsite and Online Options: To accommodate a large number of situations, we are offering the option for either physical presence or virtual participation (pdf slides or pre-recorded videos).

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ICAS 2023 is colocated with the following events as part of InfoSys 2023 Congress:

- ICNS 2023, The Nineteenth International Conference on Networking and Services
- ICAS 2023, The Nineteenth International Conference on Autonomic and Autonomous Systems
- ENERGY 2023, The Thirteenth International Conference on Smart Grids, Green Communications and IT Energy-aware Technologies
- WEB 2023, The Eleventh International Conference on Building and Exploring Web Based Environments
- DBKDA 2023, The Fifteenth International Conference on Advances in Databases, Knowledge, and Data Applications
- SIGNAL 2023, The Eighth International Conference on Advances in Signal, Image and Video Processing
- BIOTECHNO 2023, The Fifteenth International Conference on Bioinformatics, Biocomputational Systems and Biotechnologies

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ICAS 2023 conference tracks:

SELFTRENDS: Toward brain-like autonomic and autonomous systems

Adaptive robust resource allocation; Optimal self-organized collective actions; Collective adaptation; Active learning; Opportunistic collaborative interactive learning; Adaption fairness; Social and biometric data-aware adaptation; Brain connectivity models; Using unbalanced Datasets; Quantum-inspired optimization; Automated (industrial) assembly environments; Deep neural networks; Multimodal knowledge of the brain; Self-organization in M2M infrastructures; Self-organizing socio-technical systems; Context-aware data self-adaptation; Multi-level loop encapsulation in smart systems; Uncertainty in self-adaptive systems; Adaptive Software defined systems (SDS) scalability; Adaptability in multi-tenant Clouds; Self-aware model-driven systems; Proactive self-adaptation; Self-adaptive urban traffic; Adaptive power profiling; Run-time for self-adaptive systems; Distributed adaptive systems; Self-improving system integration; Self-improving activity recognition systems; Feedback computing; Optimal feedback control; Dynamic adaptive applications; Self-managing Clouds; Decentralized autonomic behavior; Market-adaptive trust; Semantics of self-behavior; Self-organizing patterns; Stability propagation in self-organizing systems; Inconsistency in self-deciding systems; Reasoning problems tractability; Decidability in self-organizing systems

ROBOTRENDS: Robot-related trends

Autonomous aquatic agents; Aerial autonomous robots; Drones control and management; Knowledge-based robot motions; Autonomous mobile robot interaction; Humanoid robots; Intelligent robots; Self-reconfigurable mobile robots; Humanoid imitative learning; Robots in unknown environments; Human centric robots; Adjustable robust optimizations; Moral autonomous agents and human evolution; Cognitive robotics; Robot partnership; Affective communication robots; Human-centric robotics; Visually-impaired and robots; Evolutionary swarm robotics; Robots and human advices; Universal robot hands

SOCIAL ROBOTS: Social robots and cognition

Human-robot interaction; Robot-robot interaction; Perception of a humanoid robots; Humanoid robots mediating social Interaction; Socially assistive robots; Conversational robots; Verbal Interaction; Human-robot touch interaction; Expressive interactions; Social emotions; Arts by humanoid robots; Collaborative social robots; Game approaches; Human-robot interactive games; Robots co-worker partners; Healthcare companion robots; Socially assistive robots; Robot-assisted rehabilitation therapy; Child-robot interaction; Mobile assistive robots; Robots in public spaces; Shopping mall robots; Home utility robots; Robot-assisted cognitive training; Robot-based multimodal emotion recognition; Advertizign robots; Telepresence robots; Robot teleoperation; Robots' social credibility

MACHINE LEARNING: Advanced topics in Deep/Machine learning

Distributed and parallel learning algorithms; Image and video coding; Deep learning and Internet of Things; Deep learning and Big data; Data preparation, feature selection, and feature extraction; Error resilient transmission of multimedia data; 3D video coding and analysis; Depth map applications; Machine learning programming models and abstractions; Programming languages for machine learning; Visualization of data, models, and predictions; Hardware-efficient machine learning methods; Model training, inference, and serving; Trust and security for machine learning applications; Testing, debugging, and monitoring of machine learning applications; Autonomous and robotics systems; Machine learning for systems.

SYSAT: Advances in system automation

Methods, techniques ant tools for automation features; Methodologies for automating of design systems; Industrial automation for production chains; Nonlinear optimization and automation control; Nonlinearities and system stabilization; Automation in safety systems; Structured uncertainty; Open and closed automation loops; Test systems automation; Theory on systems robustness; Fault-tolerant systems

UNMANNED: Driver-less cars and unmanned vehicles

Self-driving cars; Drones; Terrestrial unmanned vehicles; Unmanned aerial vehicles; Underwater unmanned vehicles; Unmanned sea surface vehicles; Collision control; Traffic surveillance challenges; Path planning and estimation; Communication between unmanned vehicles; Integration of unmanned aerial vehicles in civil airspace; Unmanned vehicular clusters; Designing unmanned vehicular-based systems; Safety of unmanned vehicles; Commercial and surveillance applications; Emergency applications; Legal aspects of unmanned vehicular systems; Testbeds and pilot experiments

AUTSY: Theory and Practice of Autonomous Systems

Design, implementation and deployment of autonomous systems; Frameworks and architectures for component and system autonomy; Design methodologies for autonomous systems; Composing autonomous systems; Formalisms and languages for autonomous systems; Logics and paradigms for autonomous systems; Ambient and real-time paradigms for autonomous systems; Delegation and trust in autonomous systems; Centralized and distributed autonomous systems; Collocation and interaction between autonomous and non-autonomous systems; Dependability in autonomous systems; Survivability and recovery in autonomous systems; Monitoring and control in autonomous systems; Performance and security in autonomous systems; Management of autonomous systems; Testing autonomous systems; Maintainability of autonomous systems

AWARE: Design and Deployment of Context-awareness Networks, Services and Applications

Context-aware fundamental concepts, mechanisms, and applications; Modeling context-aware systems; Specification and implementation of awareness behavioral contexts; Development and deployment of large-scale context-aware systems and subsystems; User awareness requirements and design techniques for interfaces and systems; Methodologies, metrics, tools, and experiments for specifying context-aware systems; Tools evaluations, Experiment evaluations

AUTONOMIC: Autonomic Computing: Design and Management of Self-behavioral Networks and Services

Theory, architectures, frameworks and practice of self-adaptive management mechanisms; Modeling and techniques for specifying self-ilities; Self-stabilization and dynamic stability criteria and mechanisms; Tools, languages and platforms for designing self-driven systems; Autonomic computing and GRID networking; Autonomic computing and proactive computing for autonomous systems; Practices, criteria and methods to implement, test, and evaluate industrial autonomic systems; Experiences with autonomic computing systems

CLOUD: Cloud computing and Virtualization

Hardware-as-a-service; Software-as-a-service [SaaS applicaitions]; Platform-as-service; On-demand computing models; Cloud Computing programming and application development; Scalability, discovery of services and data in Cloud computing infrastructures; Privacy, security, ownership and reliability issues; Performance and QoS; Dynamic resource provisioning; Power-efficiency and Cloud computing; Load balancing; Application streaming; Cloud SLAs, business models and pricing policies; Custom platforms; Large-scale compute infrastructures; Managing applications in the clouds; Data centers; Process in the clouds; Content and service distribution in Cloud computing infrastructures; Multiple applications can run on one computer (virtualization a la VMWare); Grid computing (multiple computers can be used to run one application); Virtualization platforms; Open virtualization format; Cloud-computing vendor governance and regulatory compliance

MCMAC: Monitoring, Control, and Management of Autonomous Self-aware and Context-aware Systems

Agent-based autonomous systems; Policy-driven self-awareness mechanisms and their applicability in autonomic systems; Autonomy in GRID networking and utility computing; Studies on autonomous industrial applications, services, and their developing environment; Prototypes, experimental systems, tools for autonomous systems, GRID middleware

CASES: Automation in specialized mobile environments

Theory, frameworks, mechanisms and case studies for satellite systems; Spatial/temporal constraints in satellites systems; Trajectory corrections, speed, and path accuracy in satellite systems; Mechanisms and case studies for nomadic code systems; Platforms for mobile agents and active mobile code; Performance in nomadic code systems; Case studies systems for mobile robot systems; Guidance in an a priori unknown environment; Coaching/learning techniques; Pose maintenance, and mapping; Sensing for autonomous vehicles; Planning for autonomous vehicles; Mobile networks, Ad hoc networks and self-reconfigurable networks

ALCOC: Algorithms and theory for control and computation

Control theory and specific characteristics; Types of computation theories; Tools for computation and control; Algorithms and data structures; Special algorithmic techniques; Algorithmic applications; Domain case studies; Technologies case studies for computation and control; Application-aware networking

MODEL: Modeling, virtualization, any-on-demand, MDA, SOA

Modeling techniques, tools, methodologies, languages; Model-driven architectures (MDA); Service-oriented architectures (SOA); Utility computing frameworks and fundamentals; Enabled applications through virtualization; Small-scale virtualization methodologies and techniques; Resource containers, physical resource multiplexing, and segmentation; Large-scale virtualization methodologies and techniques; Management of virtualized systems; Platforms, tools, environments, and case studies; Making virtualization real; On-demand utilities; Adaptive enterprise; Managing utility-based systems; Development environments, tools, prototypes

SELF: Self-adaptability and self-management of context-aware systems

Novel approaches to modeling and representing context adaptability, self-adaptability, and self-manageability; Models of computation for self-management context-aware systems; Use of MDA/MDD (Model Driven Architecture / Model Driven Development) for context-aware systems; Design methods for self-adaptable context-aware systems; Applications of advanced modeling languages to context self-adaptability; Methods for managing adding context to existing systems and context-conflict free systems; Architectures and middleware models for self-adaptable context-aware systems; Models of different adaptation and self-adaptation mechanisms (component-based adaptation approach, aspect oriented approach, etc.); System stability in the presence of context inconsistency; Learning and self-adaptability of context-aware systems; Business considerations and organizational modeling of self-adaptable context-aware systems; Performance evaluation of self-adaptable context-aware systems; Scalability of self-adaptable context-aware systems; Models of fault tolerant self-adaptable context-aware systems

KUI: Knowledge-based user interface

Evolving intelligent user interface for WWW; User interface design in autonomic systems; Adaptive interfaces in a knowledge-based design; Knowledge-based support for the user interface design process; Built-in knowledge in adaptive user interfaces; Requirements for interface knowledge representation; Levels for knowledge-based user interface; User interface knowledge on the dynamic behavior; Support techniques for knowledge-based user interfaces; Intelligent user interface for real-time systems; Planning-based control of interface animation; Model-based user interface design; Knowledge-based user interface migration; Automated user interface requirements discovery for scientific computing; Knowledge-based user interface management systems; 3D User interface design; Task-oriented knowledge user interfaces; User-interfaces in a domestic environment; Centralised control in the home; User-interfaces for the elderly or disabled; User-interfaces for the visually, aurally, or mobility impaired; Interfacing with ambient intelligence systems; Assisted living interfaces; Interfaces for security/alarm systems

AMMO: Adaptive management and mobility

QoE and adaptation in mobile environments; Content marking and management (i.e. MPEG21); Adaptive coding (H.265, FEC schemes, etc..); Admission control resource allocation algorithms; Monitoring and feedback systems; Link adaptation mechanisms; Cross layer approaches; Adaptation protocols (with IMS and NGNs scenarios); QoE vs NQoS mapping systems; Congestion control mechanisms; Fairness issues (fair sharing, bandwidth allocation...); Optimization/management mechanisms (MOO, fuzzy logic, machine learning, etc.)

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