The Seventeenth International Conference on Autonomic and Autonomous Systems
ICAS 2021
May 30, 2021 to June 03, 2021 - Valencia, Spain

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Deadlines

Submission	Mar 23, 2021
Notification	Apr 15, 2021
Registration	Apr 26, 2021
Camera ready	May 01, 2021

Deadlines differ for special tracks. Please consult the conference home page for special tracks Call for Papers (if any).

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Publication

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Authors of selected papers will be invited to submit extended versions to a IARIA Journal Inclusion Procedure

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ICAS 2021

Onsite and Online Options: In order 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 2021 is colocated with the following events as part of InfoSys 2021 Congress:

- ICNS 2021, The Seventeenth International Conference on Networking and Services
- ICAS 2021, The Seventeenth International Conference on Autonomic and Autonomous Systems
- ENERGY 2021, The Eleventh International Conference on Smart Grids, Green Communications and IT Energy-aware Technologies
- WEB 2021, The Ninth International Conference on Building and Exploring Web Based Environments
- DBKDA 2021, The Thirteenth International Conference on Advances in Databases, Knowledge, and Data Applications
- SIGNAL 2021, The Sixth International Conference on Advances in Signal, Image and Video Processing
- BIOTECHNO 2021, The Thirteenth International Conference on Bioinformatics, Biocomputational Systems and Biotechnologies

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Special tracks:

SFC: Smart Feedback Control
Chair and Coordinator: Prof., Dr. of Sci. Vadim Zhmud, Head of the Department of Automation, Novosibirsk State Technical University, Novosibirsk, Russia
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ICAS 2021 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

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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