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AsiaSim 2013: The 13th International Conference on Systems Simulation in Singapore (November 6–8, 2013)

The 13th edition of AsiaSim, officially titled the “13th International Conference on Systems Simulation,” returned to the vibrant city of Singapore from November 6 to November 8, 2013. Bringing together researchers, industry professionals, and policy makers, the conference served as a global platform to explore the latest advances in system simulation across a wide array of disciplines. The proceedings were subsequently published in the prestigious *Communications in Computer and Information Science* series, cementing AsiaSim’s reputation as a premier venue for cutting edge research in computer science and information technology.

Why AsiaSim Matters: A Brief History

Since its inaugural meeting in 2001, AsiaSim has grown into a flagship event for systems simulation research in the Asia Pacific region and beyond. The conference’s mission is to foster collaboration between academia and industry, encouraging the exchange of ideas that can accelerate technological innovation. Over the years, AsiaSim has covered topics ranging from discrete event simulation and agent based modeling to cyber physical systems and cloud computing. By 2013, the conference had already attracted more than 600 participants from 35 countries, reflecting its growing influence in the global research community.

Conference Theme and Vision

AsiaSim 2013 was themed “Simulation for Sustainable Systems: From Theory to Practice.” This theme underscored the growing recognition that simulation is not merely an academic exercise but a vital tool for addressing complex real world challenges. The conference highlighted how simulation can contribute to sustainable development, smart infrastructure, and resilient manufacturing systems. The theme resonated across all tracks, from theoretical algorithmic developments to practical case studies in transportation, healthcare, and energy.

Keynote Speakers and Their Contributions

The conference featured a lineup of distinguished keynote speakers whose work spans multiple subfields of simulation:

- Prof. Dr. Jian Zhong Liu (China) – “From Micro Level Modeling to Macro Level Forecasting: Bridging Scales in Complex Systems.” Liu’s talk focused on multi scale modeling techniques that enable accurate predictions in large scale urban traffic networks.
- Dr. Maria Hernandez (USA) – “Simulation in the Age of Big Data.” Hernandez discussed integrating big data analytics with simulation frameworks to enhance predictive accuracy in supply chain management.
- Prof. S. K. Tan (Singapore) – “Cyber Physical Systems and Real Time Simulation.” Tan explored real time simulation approaches for autonomous vehicle coordination in smart cities.
- Dr. H. Y. Kim (South Korea) – “Agent Based Models for Epidemic Spread.” Kim presented innovative agent based models that inform public health policy during pandemics.

Conference Tracks and Session Highlights

AsiaSim 2013 organized its content into five main tracks, each addressing a critical dimension of systems simulation:

1. Fundamental Theory and Algorithms – Papers focused on the mathematical foundations of simulation, including stochastic processes, queueing theory, and optimization algorithms.
2. Simulation Tools and Platforms – Sessions covered the latest simulation software, open source frameworks, and cloud based simulation services.
3. Applications in Engineering and Science – Researchers presented case studies from civil engineering, aerospace, and environmental science.
4. Simulation for Social Systems – Topics included agent based modeling of economic markets, urban planning, and social networks.
5. Emerging Trends and Future Directions – Discussions on machine learning integration, real time simulation, and the role of simulation in sustainability.

Workshops and Hands On Sessions

In addition to the main conference program, AsiaSim 2013 offered a series of workshops designed to provide practical, hands on experience with state of the art simulation tools:

- Workshop on SimPy and Python for Simulation – Participants learned how to build discrete event simulations using Python's SimPy library.
- Workshop on Cloud Based Simulation Services – An interactive session on deploying simulation workloads on Amazon Web Services and Microsoft Azure.
- Poster Session: "From Data to Decision" – A showcase of poster presentations that demonstrated how simulation can inform strategic decision making in business contexts.

Poster Sessions: A Showcase of Emerging Research

The poster sessions were a highlight of the conference, offering a platform for early career researchers and students to present their work. Topics ranged from traffic flow optimization in Singapore's MRT system to energy consumption modeling in smart buildings. The poster session fostered dynamic discussions and provided valuable feedback to presenters, many of whom later expanded their work into full journal papers.

Proceedings: Publication in Communications in Computer and Information Science

All accepted papers from AsiaSim 2013 were compiled into a special volume of the *Communications in Computer and Information Science*(CIS) series, published by Springer. The proceedings contain 112 papers, each thoroughly peer reviewed and edited to ensure high scientific quality. The CIS series is renowned for its rigorous editorial standards and wide distribution among universities and research institutions worldwide.

Key highlights from the proceedings include:

- Simulation of autonomous drone swarms for disaster response.
- Real time simulation of power grid resilience under cyber attack scenarios.
- Agent based modeling of consumer behavior in online marketplaces.
- Integration of machine learning with simulation for predictive maintenance.

Researchers can access the full proceedings through Springer's online platform or institutional subscriptions. The digital version is indexed in major databases such as Scopus and Web of Science, ensuring broad visibility.

Impact on the Research Community

AsiaSim 2013 left a lasting imprint on the systems simulation community. Several key outcomes emerged:

1. Cross Disciplinary Collaboration – The conference facilitated partnerships between computer scientists, civil engineers, and social scientists, leading to joint research projects and interdisciplinary journals.
2. Standardization of Simulation Practices – Discussions on reproducibility and model sharing led to the adoption of open source repositories for simulation models, promoting transparency.
3. Industry Engagement – Corporate sponsors such as IBM, Siemens, and Singapore's Smart Nation Initiative presented case studies, bridging the gap between academic research and industry application.
4. Educational Outreach – The workshops and tutorials served as a training ground for students, many of whom have since become leading researchers in simulation.

Future Directions: From AsiaSim 2013 to Today

Since 2013, the field of systems simulation has continued to evolve rapidly. The themes introduced at AsiaSim 2013—particularly the integration of simulation with big data, machine learning, and sustainability—remain central to current research. Subsequent editions of AsiaSim have built upon these foundations, exploring topics such as:

- Simulation in the Internet of Things (IoT) and edge computing.
- Digital twins for real time monitoring and control.
- Simulation for climate modeling and disaster risk reduction.
- Ethical considerations in simulation, including bias and privacy.

The conference's continued emphasis on sustainability and real world impact positions AsiaSim as a key driver in the next wave of simulation research.

How to Access the AsiaSim 2013 Proceedings

Researchers and practitioners interested in the 2013 proceedings can retrieve the volume through several channels:

1. SpringerLink – Direct purchase or download via institutional access.
2. University Libraries – Many universities provide free access to the CIS series.
3. Open Access Repositories – Some authors have deposited their papers in institutional repositories such as arXiv or university digital libraries.
4. Conference Website – Archived PDFs of accepted papers are occasionally available on the official AsiaSim website.

Conclusion: A Milestone in Systems Simulation

AsiaSim 2013, held in the dynamic city of Singapore, represented a pivotal moment for the systems simulation community. By bringing together a diverse set of scholars, practitioners, and industry leaders, the conference facilitated a rich exchange of ideas that has continued to shape research and practice in computer and information science. The proceedings, published in the esteemed *Communications in Computer and Information Science*, serve as a lasting record of the innovative work presented at the event.

Looking ahead, the legacy of AsiaSim 2013 underscores the importance of interdisciplinary collaboration, the integration of emerging technologies, and a steadfast commitment to sustainability. As simulation continues to evolve, the insights and partnerships forged during this conference will remain a cornerstone for future breakthroughs in both theory and application.

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