

Events

ICGG2024. The 21st International Conference on Geometry and Graphics

Giovanni Albini

Geometry and Graphics understood both as disciplines and fundamental tools of perception, technique and thought, today embrace an increasingly complex set of research areas. In this context, the *International Conference on Geometry and Graphics* (ICGG) has been a relevant meeting point for the scientific community since 1978, promoting exchange between scholars, professionals and institutions involved in research on the foundations, innovations and applications of Geometry and Graphics. Perhaps the most significant and characterizing aspect of ICGG is its wide multidisciplinary, interdisciplinary and transdisciplinary scope, also evident in this edition, both in the structure of the sessions and in the very nature of the contributions presented and the initiatives proposed.

The twenty-first edition of the biannual conference, the ICGG 2024, was held from August 5 to 9, 2024 at the Kitakyushu International Conference Center, in the city of Kitakyushu, located at the northern tip of the island of Kyūshū, Japan (fig. 1). A particularly significant and heartfelt event for the organizing institution, the ISGG (*International Society for Geometry and Graphics*): in fact, since the eighteenth edition, organized in 2018 at the Politecnico di Milano (Italy), the Conference has not taken place in person, due to the pandemic

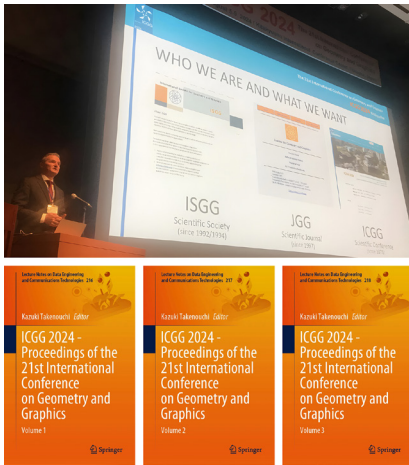
emergency. About participation, the return to the in-person format after the forced suspension, constituted a significant moment of relaunch, which has received full appreciation from the whole international scientific community. The conference, in fact, was attended by 166 participants from 22 countries. The Japanese context also offered a cultural and environmental component that enriched the event, not only in the scientific content. The large spaces of the Kitakyushu International Conference

Center, designed by Arata Isozaki, adequately enhanced by the organizers, contributed to facilitating the interaction among the participants. The excellent structure also cushioned, making them almost imperceptible, the effects of the powerful seismic shock of magnitude 7.1 which occurred on the afternoon of August 8th. The guided tour through some sites in the city –organized on 7 August– allowed us to appreciate the enchanting atmosphere offered by Kitakyushu, a city that surprises the visitor

Fig. 1. Poster of the event.



Fig. 2. ICGG2024 Opening Session: report by the ISGG President Luigi Cocchiarella and the three-volume proceedings of the ICGG2024 conference.



with the harmony between modernity and tradition, where innovative urban landscapes coexist with quiet corners rich in nature, history and culture. The *Executive Chair* of the conference was Kazuki Takenouchi (University of Kyushu, former President of the Japan Society of Graphic Science), supported by the two Co-Chairs, Kazuya Kojima and Yosuke Morioka (Kindai University), and by the *Local Organizing Committee*, composed of Kazuya Saito (University of Kyushu), Maiko K. Tsujii (Nishinippon Institute of Technology), Shingo Nakanishi (Osaka Institute of Technology), Takefumi Otsu (Oita University), Tetsuo Kaneko (Kinai University) and Toru Ihara (All Japan Tohsu Technical Association in Civil Engineering). The organization guaranteed a structured and balanced program, considering the different thematic areas. The organization has favored a multidisciplinary debate, highlighted at first by the thematic variety offered by the Opening Lecture, by the four Special Lectures and

by a space intended for discussion during the meeting of the ISGG members. The start of the event, after the greetings of Kumiko Shiina (JSGS, then Vice-President of ISGG) and Liang-Yee Cheng (Executive Chair of ICGG 2022 and ICGG 2020), was in fact the Opening Lecture held by Luigi Cocchiarella (Politecnico di Milano, the President of ISGG) entitled *Changes in the ICGG's Conference Topics: a Pathway Through Geometry and Graphics Over Time, from Descriptive Geometry to Artificial Intelligence*. The first of the four Special Lectures, entitled *Visual Communication and Entertainment*, was held by Hitoshi Takekiyo, Hiroki Eto and Satoshi Takeno of the Japanese company MontBlanc Pictures. The presentation was enhanced by a connected immersive experience: the *Mobile 3D Ride Attraction*, set up on 6 August at the main entrance of the conference center. Participants were able to board a vehicle equipped with mobile visual attractions, parked next to the conference venue, experiencing, according to the designers' intentions, a sort of 'time machine' capable of stimulating all the senses through stereoscopic images, immersive sound and vibration systems integrated into the seat. The installation was about the world of the animated film *After School Midnighters*, offering a moment of leisure but at the same time consistent with the themes of the Special Lecture, focused on the frontiers of visual communication. The following one was given by Masakatsu Matsuyama, member of the Matsuyama Architect and Associates, on the topic *Architecture and Design Process*. The two contributions stood out not only for disseminating specific knowledge, but also as expressions of the peculiarities of creativity in Japanese culture: from the original technical solutions in the context of 'MontBlanc Pictures' anime to Matsuyama's testimony on the merits of the

design of the villa intended for his parents. The latter, accompanied by images and videos, was particularly engaging, for its ability to convey the design process in every phase, highlighting the intimate relationship between architectural gesture, family memory and cultural sensitivity. The third Special Lecture, *Geometry and Weaving*, was held by the independent researcher Alison Martin; the fourth and last, entitled *Microgeometry Design, Simulation and Manufacturing*, was offered by Zhenyu Liu (Zhejiang University). Finally, a moment dedicated to the ISGG institutional members –*Meeting of the ISGG Institutional Members and Associated National Organizations*– was organized and moderated by Luigi Cocchiarella and gave rise to the *ISGG Cooperative Mission in the AI Era* round table, focused on the challenges and opportunities that artificial intelligence opens up in the fields of representation and teaching.

131 scientific contributions were selected, out of 173 received from authors from 29 countries. They were divided for being presented into thirty thematic sessions, which took place up to four in parallel, and which ranged from pure and applied mathematics to teaching, up to computational graphics, intertwining a wide range of scientific, technical and artistic disciplines in the common denominators of Geometry and Graphics. A poster session was added to the reports, which collected 13 contributions. All the scientific contributions were then published in 2025 on three volumes, published by Springer and indexed as Scopus records, entitled *Proceedings of the 21st International Conference on Geometry and Graphics*, in the *Lecture Notes on Data Engineering and Communications Technologies* series (fig. 2). The first volume is divided into three sections: *Theoretical Graphics and Geometry, Graphics Education and Related Topics*. The second

volume is entirely dedicated to the topic of *Applied Geometry and Graphics*: the variety of studies proposed in it is broad and multidisciplinary. A quick look at the contributions included in the volume is sufficient to convey the breadth of the fields of research involved: they range from bio-image analysis studies applied to the morphology of leaves and biomimicry processes, to research on virtual reality, from a study dedicated to the metaphysical spaces in Giorgio de Chirico's painting, up to glitch art experiments generated through artificial intelligence, just to recall some of the trajectories addressed. The third volume is finally divided into the *Engineering Computer Graphics*, *Geometry and Graphics in History* sections and collects 13 posters.

The conference also hosted a competition. *The International Digital Modeling Contest*, organized by the Japan Society of Graphics Science under the guidance of Hirotaka Suzuki (Kobe University, President of JSGS) and Kensuke Yasufuku (Osaka University, Director of ISGG), took place during the Conference days. The contest aimed to promote fundamental technologies

for the creation of three-dimensional mechanisms and objects in innovative environments based on additive manufacturing (3D printing). Ten proposals from three countries were submitted; among these, eight works –together with works already awarded in previous national competitions– were publicly exhibited during the conference.

The convivial dimension of the conference found its culminating moment in the Conference Dinner, which took place on the evening of 8 August at the Art Hotel Kokura New Tagawa. The hotel houses a renowned *shoin-style* garden, designed as a path around a pond and dating back to the Meiji era: a place of great historical and landscape value, ranked 35th in the 2021 Japanese Garden Ranking curated by the American magazine *Sukiya Living Magazine / Journal of Japanese Gardening*, which evaluates around a thousand gardens across Japan. The dinner was further enriched by a traditional Japanese music show, which offered participants an authentic cultural experience that was harmoniously integrated with the atmosphere of the hotel. The last Day, at the Closing Ceremony, the *Steve M. Sla-*

by Award, the highest ISGG recognition, has been released to Cornelia Leopold (TU Kaiserslautern) and Daniela Velichova (STU Bratislava), for the distinguished scientific contribution in the advancement of Geometry and Graphics in research and education during their university career. The motivation was read by Gunter Weiss (ISGG president 2005-2008). *The Loyal Friends of ICGG Award* has been given by the ISGG President in Office to Cheng Liang-Yee, for the innovation introduced in the Conference organization during the pandemic spread in 2021 and 2022, when the ICGGs took place as online events. At the end of the Conference, it was announced that the next edition, the 22nd *International Conference on Geometry and Graphics*, will be hosted in Zagreb (Croatia) from 3 to 7 August 2026. The Conference concluded with the Resolution of ICGG 2024, proclaimed by Yasushi Yamaguchi (ISGG president 2017-2020) and, as per tradition, the event closed with the participants singing the song *Auld Lang Syne* in chorus, on the soundtrack arranged by Giovanni Albini, and the direction of Gunter Weiss.

Author

Giovanni Albini, Dipartimento di Didattica, Composizione, Jazz e Musiche Tradizionali, Conservatorio "A. Vivaldi" di Alessandria, giovanni.albini@conservatorioivvaldi.it