



SIGGRAPH
ASIA 2024
TOKYO 東京

Conference | 3–6 December 2024

Exhibition | 4–6 December 2024

Venue | Tokyo International Forum, Japan

Automatic 3D modeling and exploration of indoor structures from panoramic imagery

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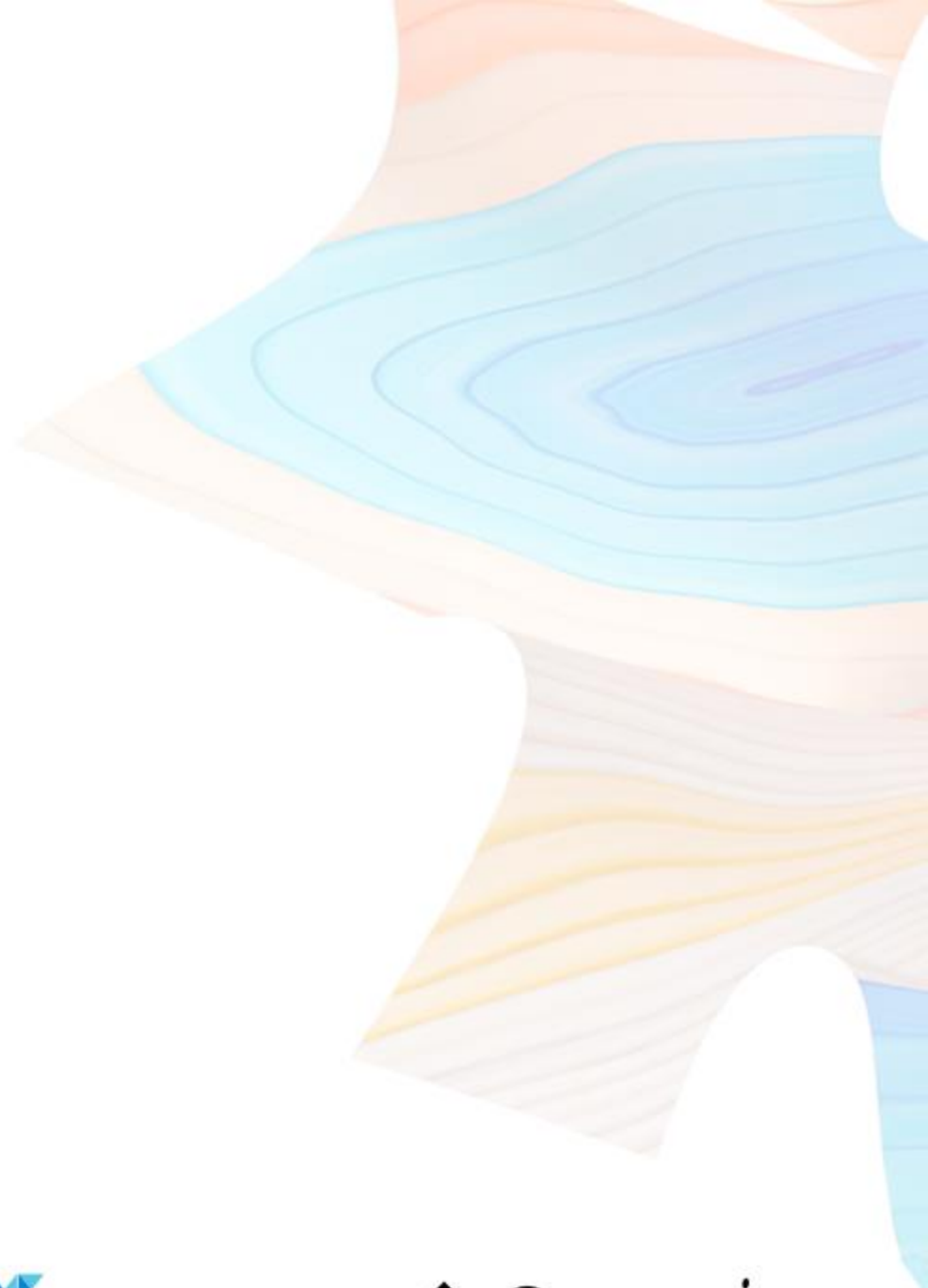
Marco Agus

HBKU – Qatar

Enrico Gobbetti

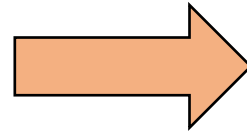
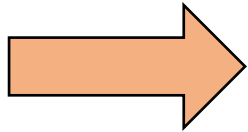
CRS4 – Italy

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SESSION 1: OPENING

Automatic 3D modeling and exploration of indoor structures from panoramic imagery



Organizers and lecturers



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Schedule

- **Before the break:**

- **Opening**

- **Indoor capture and modeling basics**

- Definition and Application; tasks and model; data capture and motivation for panoramic use case; artifacts; reconstruction priors; open research data

- **Room modeling**

- Bounding surfaces, exploiting priors, deep learning solutions; per-pixel information; 3D layouts; examples of data-driven pipelines for depth and layout recovery

- **After the break:**

- **Integrated indoor model computation**

- Multi-rooms; Multi-view; Examples of data-driven pipelines for 3D floorplan recovery

- **Visual representation generation and exploration**

- Beyond geometric information; editing/staging use case; view synthesis; Immersive panoramic exploration;

- **Wrap-up, conclusions, Q&A**

Supporting material (1/2)

- **Course web site**
 - <https://www.crs4.it/vic/sigasia2024-course-pano/>
 - Updated in coming weeks with slides
- **Course notes**
 - G. Pintore, M. Agus, E. Gobbetti, Automatic 3D modeling and exploration of indoor structures from panoramic imagery. Proc. SIGGRAPH Asia 2024.



Supporting material (2/2)

- **Additional material**

- G. Pintore, C. Mura, F. Ganovelli, L. Fuentes-Perez, R. Pajarola, and E. Gobbetti. State-of-the-art in Automatic 3D Reconstruction of Structured Indoor Environments. Computer Graphics Forum, 39(2): 667-699, 2020. DOI: 10.1111/cgf.14021
 - Established STAR, good intro to the overall field – see also related ACM SIGGRAPH Course (2020)
- Automatic 3D modeling of indoor structures from panoramic imagery. CVPR 2023 Tutorial - <https://www.crs4.it/vic/cvpr2023-tutorial-pano/>
 - Previous version of this course, more oriented towards computer vision



NEXT SESSION: INDOOR CAPTURE, MODELING, AND EXPLORATION BASICS