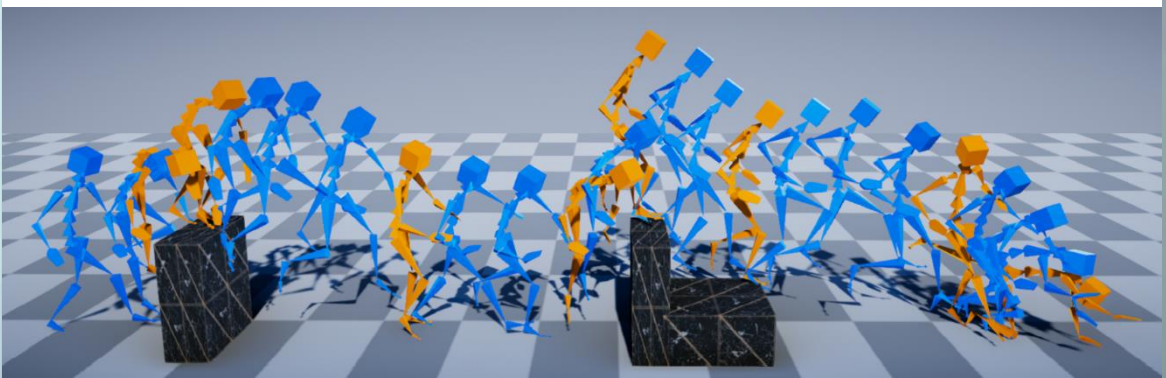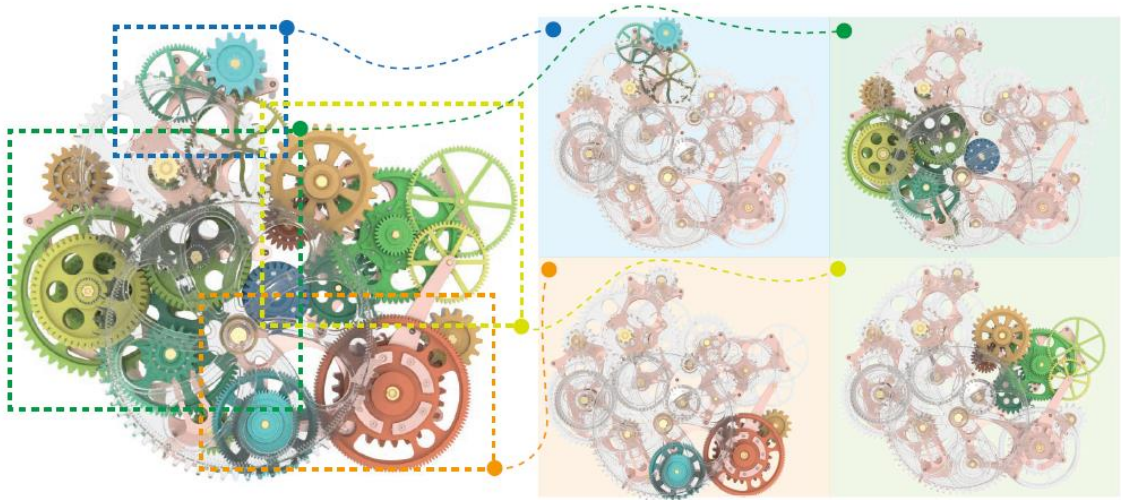# ASIAGRAPHICS

Asian Association for Computer Graphics
and Interactive Technology

Newsletter

Issue 5, September 2022

www.asiagraphics.org

New Rotation of AG Executive Committee (EC) Members

In March 2022, the election of new rotation of the Executive Committee (EC) members of Asiagraphics (AG) was conducted. According to the vote counting results by all AG members, the new EC members are as follows.

Prof. Hujun BAO, Zhejiang University, P. R. China
A/Prof. Angel X. CHANG, Simon Fraser University, Canada
Prof. Baoquan CHEN, Peking University, P. R. China
Prof. Bing-Yu CHEN, Taiwan University, Taiwan, China
Prof. Daniel COHEN-OR, Tel Aviv University, Israel
Prof. Yoshinori DOBASHI, Hokkaido University, Japan
Prof. Hongbo FU, City University of Hong Kong, Hong Kong, China
Prof. Xiangfeng David GU, State University of New York at Stony Brook, USA
Prof. Shi-Min HU, Tsinghua University, P. R. China
Prof. Min H. KIM, KAIST, Korea
Prof. Dr. Leif KOBBELT, RWTH Aachen University, Germany
Prof. Yu-Kun LAI, Cardiff University, UK
Prof. Seungyong LEE, POSTECH, Pohang, South Korea
Prof. Ming C. LIN, University of Maryland, USA
Prof. Wen-Chieh LIN, National Chiao-Tung University, Taiwan, China
Prof. Ligang LIU, University of Science and Technology of China, P. R. China
A/Prof. Taehyun RHEE, Victoria University of Wellington, New Zealand
Prof. Ariel SHAMIRE, Reichman University, Israel
A/Prof. Peng SONG, Singapore University of Technology and Design, Singapore
Prof. Hiromasa SUZUKI, The University of Tokyo, Japan
Dr. Xin TONG, Microsoft Research Asia, Beijing, P. R. China
Prof. Wenping WANG, Texas A&M University Engineering, USA and The University of Hong Kong,Hong Kong, China
Prof. Jianmin ZHENG, Nanyang Technological University, Singapore
Prof. Kun ZHOU, Zhejiang University, P. R. China

Call for Nominations: Asiagraphics Awards 2022

Starting in July 2017, Asiagraphics decided to establish the Asiagraphics Awards Program. The goal of the program is to recognize exceptional achievements in computer graphics and promote computer graphics research in Asia.

In 2022, Asiagraphics will present two awards:
(1) **Outstanding Technical Contributions Award;**
(2) **Young Researcher Award**.
Please see http://www.asiagraphics.org/awards/ for selection criteria.

Now Asiagraphics members can nominate candidates and the nomination forms can be found in the attachment.

All nominations for the above awards should be submitted by email to 'awards.asiagraphics@gmail.com' and include a one-page nomination letter describing the candidate's achievements in light of the mentioned criteria in the website as well as a sufficiently informative CV supporting the nomination by objective assessments. A list of endorsers is optional and not mandatory. Self-nominations are not accepted.

The deadline for nominations is **September 13, 2022.**

Call for Participation: Pacific Graphics 2022

Kyoto International Conference Center, Kyoto, Japan
October 5th-8th, 2022.
Web: https://pg2022.org/
Venue: https://www.icckyoto.or.jp/en/
Contact us: info@pg2022.org

We are delighted to announce that registration is now open for Pacific Graphics 2022. This year, Pacific Graphics 2022 is a part of CG Kyoto 2022 and will be co-located with Visual Computing 2022, the largest domestic conference on computer graphics in Japan.

Join leading Computer Graphics professionals in Kyoto, Japan and/or online this 5th-8th October. The in-person event will take place at the iconic Kyoto International Conference Center. In addition, there will be a significant range of conference programs accessible online with live networking opportunities as well.
- Register now: https://pg2022.org/#REGISTER

Keynote speakers
 ・ Mirela Ben-Chen (Technion)
 ・ Hao Li (MBZUAI/Pinscreen)
 ・ Rana Hanocka (University of Chicago)

Registration Categories
[Onsite]
Onsite - AG Senior Member (early bird): 75,000 JPY
Onsite - AG Senior Member (regular): 85,000 JPY
Onsite - Non AG Member (early bird): 80,000 JPY
Onsite - Non AG Member (regular): 90,000 JPY

Call for Participation: Pacific Graphics 2022

[Virtual]
Virtual (early bird): 15,000 JPY
Virtual (regular): 20,000 JPY
[Student]
Student: free of charge
[Contributor]
Contributor - AG Senior/Student Member: 75,000 JPY
Contributor - Non AG Member: 80,000 JPY

If you register as an "Onsite" participant, you are also eligible not only for physical participation but also for virtual participation, namely, the onsite participants can also get an URL for live streaming the conference. On the other hand, if you register as a "Virtual" participant, you are not allowed to participate in the conference in person. If you are a "Student", you can participate in the conference free of charge. However, even students must register with this form.

[Special discount for PG+VC participants]
VC (Visual Computing) is the largest computer graphics conference for both academia and industry in Japan. If you plan to participate in both PG 2022 and VC 2022, you are eligible for a special discount of 20,000 JPY. Register to [VC 2022] first and get the discount code in the confirmation E-mail. Then, with the code, you can register to PG 2022 with the discount rate.
*Be careful that the official language in VC 2022 is Japanese.

Please be aware that you can get a ticket with the early bird rate until 23:59 JST, Sep. 4th.

Call for Papers: Computational Visual Media Conference (CVM 2023)

With the rapid progress in recent technologies, large-scale visual data can be found on the Internet, bringing significant opportunities for novel processing of visual information, as well as commercial applications. Systematically managing such data, finding patterns in it, understanding them, efficiently processing them, and making best use of them present great challenges. The Computational Visual Media Conference series, of which this is the 11th conference, will provide a forum for exchanging recent research ideas and practical achievements in all areas and applications of Visual Media.

The Computational Visual Media Conference 2023 will be run in plenary sessions (no parallel tracks) on the dates April 6-8, 2023, and will be hosted by Shenzhen University.

Conference Topics
Topics of interest include, but are not limited to:
- Animation and physical simulation
- Cognition of visual media
- Content security of visual media
- Editing and composition of visual media
- Enhancement and re-rendering of visual media
- Geometric computing for image and video
- Geometry modeling and processing
- Image and video retrieval
- Interactive editing of visual media
- Machine Learning for visual media
- Recognition and understanding of visual media
- Rendering
- Social Networks and social media
- Visualization and visual analytics

http://iccvm.org/2023/index.htm

Call for Papers: Computational Visual Media Conference (CVM 2023)

(cont'd...)

Information for Authors

Full papers in English containing original and unpublished results are solicited. The length of a paper should not exceed 14 pages. The paper should be submitted in pdf format, and each submission are allowed to upload a supplementary file within 50M.

Important Dates (All deadlines are at 23:59 GMT.)

Abstract due: **September 21, 2022.**

Full papers due: **September 23, 2022.**

Acceptance notification: **November 21, 2022.**

Conference days: **April 6-8, 2023.**

Proceedings and Special Journal issues

Submitted papers will be reviewed by the program committee. All accepted papers will be published in journals (after a revision round), including IEEE Transactions on Visualization and Computer Graphics, Graphical Models (Elsevier), Journal of Computer Science and Technology (Springer), and Computational Visual Media (Springer).

Call for Papers: IEEE VR 2023

Overview

IEEE VR 2023 seeks original, high-quality papers in all areas related to virtual reality (VR), including augmented reality (AR), mixed reality (MR), and 3D user interfaces (3DUIs). This year there will be a single submission deadline for a unified review process for both the IEEE TVCG and the conference-only papers. The possible outcomes of this unified process are:

1. Accept as IEEE TVCG paper, with a presentation at IEEE VR 2023
2. Major revision to IEEE TVCG
3. Accept as IEEE VR 2023 conference paper
4. Accept as IEEE VR 2023 poster
5. Reject

For inquiries, contact: program2023 [at] ieeevr.org.

Important Dates (Each deadline is 23:59:59 AoE)

The submission deadlines will be strictly enforced. Requests for extensions will not be honored.

October 7, 2022: Abstracts due (REQUIRED)
October 14, 2022: Submissions due
December 16, 2022: Notification of first review cycle results
January 20, 2023: Revised submissions due for second review cycle
January 27, 2023: Final notifications
February 3, 2023: Camera-ready material due

Technical Papers Chairs:

Bobby Bodenheimer, Vanderbilt University, USA
Voicu Popescu, Purdue University, USA
John Quarles, The University of Texas at San Antonio, USA
Lili Wang, Beihang University, China

Contacts: program2023 [at] ieeevr.org

http://ieeevr.org/2023

Call for Papers: IEEE VR 2023

Submission Guidelines:

Paper abstracts and complete papers must be submitted electronically through PCS: https://new.precisionconference.com/~vr

Each research paper should provide a validated contribution covering one or more of the following categories: methodological, technical, applications, and systems.

- **Methodological papers** should describe advances in theories and methods of AR/VR/MR and 3DUI, such as ethical issues, theories on presence, or human factors.
- **Technical papers** should describe advancements in algorithms or devices critical to AR/VR/MR and 3DUI development such as input, display, user interaction, or tracking.
- **Application papers** provide an important insight to the community by explaining how the authors built upon existing ideas and applied them to solve an interesting problem in a novel way. Each paper should include an evaluation of the success of the use of AR/VR/MR and/or 3DUI in the given application domain.
- **System papers** should indicate how the developers integrated techniques and technologies to produce an effective system, and convey any lessons learned in the process.

We welcome paper submissions between 4 and 9 pages, not including references. Authors are encouraged to submit videos to aid the program committee in reviewing their submissions.

All submissions describing research experiments with human participants must follow the appropriate ethical guidelines required by your institution, and authors are required to secure and report their approval by the relevant ethics committee. An approval by any ethical review board, if required by your affiliation, needs to be indicated via the submission system.

http://ieeevr.org/2023

Call for Papers: EUROGRAPHICS 2023

The EUROGRAPHICS 2023 Full Papers Program will showcase innovative research in Computer Graphics and related areas. We invite submissions of new ideas and encourage all forms of research creativity and originality. We are interested in the practice, experience, novel applications, technological, system, or theoretical papers, with the ambition of setting the standard in the field and stimulating future trends.

Accepted full papers will be presented at EUROGRAPHICS 2023 and published in a special issue of the Eurographics journal Computer Graphics Forum; the submissions will undergo a double-blind two-step review process. We encourage submissions from all areas related to computer graphics, including but not limited to rendering, modeling, animation, simulation, visualization, virtual and augmented reality, display technology, image processing, computational imaging, computational fabrication, human-computer interaction, and deep learning techniques applied to graphics problems. Eurographics Full Papers will be published in the EG Digital Library. Also, Gold Open Access will be available with an extra publication fee that includes open access fee and support through the EG Digital Library.

Eurographics 2023 will be hosted in Saarbrücken on May 8th-12th, 2023. It will be hosted at Saarland Informatics Campus (SIC), which is located on site of Saarland University.

Participants of Eurographics 2023 will be able to attend presentations of latest advances in computer graphics and imaging from the research and industry experts. It is also going to be a great opportunity to meet with international researchers in the domain and socialize around the conference social events.

https://eg2023.saarland-informatics-campus.de/

Call for Papers: EUROGRAPHICS 2023

TIMELINE:

23rd Sept, Fr	Preliminary abstract due
30th Sept, Fr	Full paper due
21th Nov, Mo	Reviews available rebuttal start
28th Nov, Mo	Rebuttal due
13th Dec, Tue	Notification to Authors
17th Jan, Tue	Revised version due
3rd Feb, Fr	Final notification
17th Feb, Fr	Camera-ready version due

* All deadlines are at 23:59 UTC

SUBMISSION DETAILS:

Electronic submission of all papers is mandatory and will be conducted using the Submission and Review Management (SRMv2). Papers must be written in English, must be anonymized, and must be formatted according to the Eurographics Computer Graphics Forum guidelines. The publication guidelines and LaTeX templates are available on SRMv2. Accepted papers must be presented orally in English at Eurographics 2023. Review of full papers is based on a double-blind reviewing approach, so please be sure to remove all personal data (such as authors, affiliations, etc.) from your submission. References to your own work should be made in the third person to maintain anonymity. Reviewers are asked to keep confidential all materials sent to them for evaluation.

There is no maximum length imposed on papers. However, papers should only be as long as they need to be, but not longer. Reviewers might rank submissions perceived as being either repetitive or unnecessarily long lower than they would score concisely written papers.

AG Webinar Session 13

Date: Tuesday, August 30, 2022
Time: 11:00am UTC/GMT | 07:00pm (Beijing, Singapore) | 08:00pm (Seoul, Tokyo)
**Chair**: Juyong Zhang, University of Science and Technology of China, China

Talk 1

Title: 3D Shape Parsing from Point Clouds
Speaker: Prof. Jianmin Zheng, Nanyang Technological University, Singapore

Abstract:
With the advance in 3D acquisition technologies, point clouds are easily generated and become a widely adopted 3D data representation.
However, the unordered and unstructured nature of point clouds makes it difficult to perform high level manipulation and easy editing of their underlying geometries. There is a great demand for converting point clouds to high level shape representations that help understand the shapes, support the re-creation of new products, and facilitate practical applications. This talk presents some research in this direction. Particularly, a three-level structure called CSG-Stump is introduced, which describes the combination of underlying constituent modeling primitives of a shape in a simple and regular manner and thus makes itself learning friendly. Then two networks are presented: one is CSG-Stump Net that generates a CSG representation of a shape from point clouds, and the other is ExtrudeNet that uses machine learning to reverse engineer the sketch-and-extrude modeling process of a shape in an unsupervised fashion. These networks can be used for 3D shape parsing from point clouds.
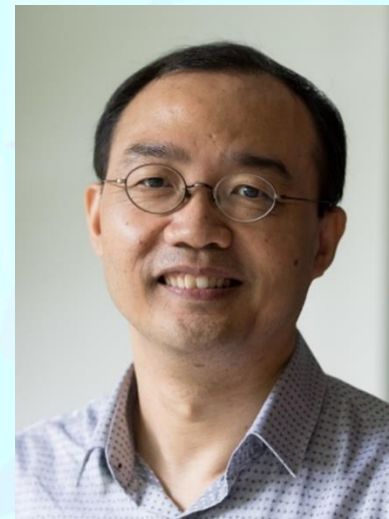
AG Webinar Session 13

Talk 2

Title: Neural Rendering for Novel View
Appearance, Semantic, and Content Synthesis
Speaker: Prof. Yiyi Liao
Zhejiang University, China

Abstract:
Photorealistic visual content and 3D assets
are essential for graphics and vision with many applications in gaming, simulation, and virtual reality. Creating these visual contents manually is extremely time-consuming and requires the concerted effort of many 3D artists. Recent advances in neural rendering, e.g., NeRF, have demonstrated impressive results for reconstructing such 3D visual content from the real world via end-to-end training. However, scaling neural rendering to graphics and vision applications still faces several challenges, including the slow rendering speed, the absence of semantic information, and the lack of novel content creation. In this talk, I will present our recent progress in tackling these challenges, including KiloNeRF for fast rendering, Panoptic NeRF for rendering semantic labels, and GRAF and VoxGRAF for creating novel content using 3D-aware generative models.

AG Webinar Session 12

Date: Sunday, July 31, 2022
Time: 11:00am UTC/GMT | 07:00pm (Beijing, Singapore) | 08:00pm (Seoul, Tokyo)
Chair: Qilin Sun, The Chinese University of Hong Kong, Shenzhen, China

Talk 1

Title: Find the gap: Learning 3D representation from 2D image collections
Speaker: Dr. Xin Tong
Microsoft Research Asia (MSRA)

Abstract:

3D deep learning has demonstrated its advantage in many 3D graphics applications. However, compared to images and videos that can be easily acquired from real world, modeling or capturing 3D dataset (e.g. shapes and material maps) is still a difficult task, which limits the scale of 3D dataset available in 3D deep learning.

In this talk, I will introduce our explorations in the last several years on how to utilize 2D image collections in 3D deep learning. By bridging the gap between 2D images and 3D representations, we believe that this method will release the power of deep learning and enable new solutions for 3D content creation.

Talk 2

Title: Differentiable Computational Imaging with

Speaker: Prof. Seung-hwan Baek
POSTECH, Korea

Abstract:

Modern camera systems have evolved to effectively capture light and become essential tools for many applications. Developing such imaging systems has commonly required hand-crafted or heuristic rules set by human experts, and post-processing algorithms were devised in isolation with the imaging-system design. This results in sub-optimal performance and fundamentally limits its application to new problems. In this talk, I will present our work on capturing, analyzing, and exploiting overlooked dimensions of light waves via end-to-end imaging system designs from optics to reconstruction algorithms. We demonstrate that this joint design approach allows for understanding the high-dimensional visual information of the real world originating from complex interplays between light, material appearance, and geometry.

AG Webinar Session 11

Date: Tuesday, Jun 28, 2022
Time: 11:00am UTC/GMT | 07:00pm (Beijing, Singapore) | 08:00pm (Seoul, Tokyo)
Chair: Xiaopei Liu, ShanghaiTech University, China

Talk 1

Title: Fun with Fluids
Speaker: Prof. Yoshinori Dobashi
Hokkaido University, Japan

Abstract: We see fluids everywhere in our daily life and their appearances attract many people, including researchers, due to its complicated and interesting motions. Thus, visual simulation of fluid phenomena has become one of the most important research topics in computer graphics. Examples of such phenomena include water, fire, smoke, and so on. These methods numerically solve Navier-Stokes equations to synthesize realistic appearances and motions. We have also been working on applications of fluid simulation. One of the problems with fluid simulation is its expensive computational cost and the directability. We mainly focus on the latter problem, the directability. Generating the desired visual effects with numerical fluid simulation is usually difficult; the user has to repeat the simulation repeatedly until he or she obtains the desired appearances and motions. In this talk, I will first introduce fluid simulation briefly and our interesting applications of it. Then, I will talk our approach for improving the directability, including inverse cloud simulation, modeling of fluids from images, and editing of simulated fluid data.

AG Webinar Session 11

Talk 2

Title: Modeling Fluid-solid Mixture with Smoothed Particle Hydrodynamics
Speaker: Prof. Bo Ren
Nankai University, China

Abstract:

In computer graphics, particle-based discretization is commonly adopted for fluid simulations. Astonishing results have been achieved by various research works or in industrial applications. However, there are still ways to go for using particle-based methods to simulate real-world multi-fluid mixtures, especially non-interfacial flows where different phases actually mix together with concentration changes during the fluid motions. Such "miscible" behaviors are important in diffusion, extraction, dissolution, chemical reaction or porous capillary actions, etc. In this talk, I will talk about how can we use the Smoothed Particle Hydrodynamics (SPH) method to reproduce such effects. First, I will provide an introduction the theoretical foundation, which is the mixture model. Then, I will use recent works to demonstrate progresses over its original shortcomings. Finally, I will talk about how we can exploit the theory for a more universal simulation that deals with different physical laws together.

AG Webinar Session 10

Date: Tuesday, May 31, 2022
Time: 11:00am UTC/GMT | 07:00pm (Beijing, Singapore) | 08:00pm (Seoul, Tokyo)
Chair: Tuanfeng Y. Wang, Adobe Research

Talk 1

Title: Non-Photorealistic Vision and Graphics
Speaker: Prof. Ariel Shamir
Reichman University, Israel

Abstract: Computer vision and graphics algorithms for both analysis and synthesis have developed considerably in recent years due to advancements in neural networks and deep learning methods. Nevertheless, these algorithms concentrate mainly on photorealistic inputs and outputs. In this talk, I will present several efforts to advance the state-of-the-art on non-photorealistic (NPR) visual content such as animations, cartoons and even art paintings. The main challenges stem from the differences of these domains in subject, appearance, variance, and abstraction. I will show how learning correct representations as well as domain adaptation techniques enable tracking, segmentation, landmark detection in NPR domains, and allow synthesis of abstract visual depictions.

AG Webinar Session 10

Talk 2

Title: Neural Representation and Renderi[ng] of 3D Real-world Scenes

Speaker: Prof. Lingjie Liu, Max Planck Institute for Informatics, Germany

Abstract:

High-quality reconstruction and photo-realistic rendering of real-world scenes are two important tasks that have a wide range of applications in AR/VR, movie production, games, and robotics. These tasks are challenging because real-world scenes contain complex phenomena, such as occlusions, motions and interactions. Approaching these tasks using classical computer graphics techniques is a highly difficult and time-consuming process, which requires complicated capture procedures, manual intervention, and a sophisticated global illumination rendering process. In this talk, I will introduce our recent work that integrates deep learning techniques into the traditional graphics pipeline for modelling humans and static scenes in an automatic way. Specifically, I will talk about creating photo-realistic animatable human characters from only RGB videos, high-quality reconstruction and fast novel view synthesis of general static scenes from RGB image inputs, and scene generation with a 3D generative model. Finally, I will discuss challenges and opportunities in this area for future work.

AG Webinar Session 9

Date: Tuesday, April 26, 2022
Time: 11:00am UTC/GMT | 07:00pm (Beijing, Singapore) | 08:00pm (Seoul, Tokyo)
Chair: Yu-Kun Lai, Cardiff University, UK

Talk 1

Title: Semantic Image Editing using GANs
Speaker: Prof. Peter Wonka
KAUST, Saudi Arabia

Abstract: In this talk, I will discuss recent papers from our group about semantic image editing using GANs. I will discuss embedding algorithms and various algorithms for manipulating latent representations. Applications of this work are attribute-based editing, hairstyle editing, style transfer, and domain adaptation. All discussed algorithms will use StyleGAN2.

AG Webinar Session 9
Talk 2

Title: Geometric Modeling from
Flat Sheet Material
Speaker: Prof. Caigui Jiang
Xi'an Jiaotong University, China

Abstract: In this presentation, I will talk about
our recent work on geometric modeling based on planar materials.
There are several related works and I will focus on two of them:
1. Quad-Mesh Based Isometric Mappings and Developable Surfaces.
We discretize isometric mappings between surfaces as
correspondences between checkerboard patterns derived from
quad meshes. This method captures the degrees of freedom
inherent in smooth isometries and enables a natural definition of
discrete developable surfaces.
2. Shape-morphing mechanical metamaterials. Small-scale cut and
fold patterns imposed on sheet material enable its morphing into
three dimensional shapes. This manufacturing paradigm has been
receiving much attention in recent years and poses challenges in
both fabrication and computation. It is intimately connected with
the interpretation of patterned sheets as mechanical
metamaterials, typically of negative Poisson ratio. We here present
an affirmative solution to a fundamental geometric question,
namely the targeted programming of a shape morph. We use
optimization to compute kirigami patterns that realize a morph
between shapes, in particular between a flat sheet and a surface in
space. The shapes involved can be arbitrary; in fact we are able to
approximate any mapping between shapes whose principal
distortions do not exceed certain bounds. This amounts to a
solution of the so-called inverse problem for kirigami cut and fold
patterns.