International Conference on Computer-Aided Design and Graphics 2017
(CAD/Graphics 2017)
Asian Conference on Design and Digital Engineering 2017
(ACDDE 2017)

Program

会议程序册

Zhangjiajie，China
August 23–27, 2017

Sponsored by：
China Computer Federation (CCF)
Organized by：
Technical Committee on CAD&CG, CCF
Activity Group on Geometric Design and Computing, CSIAM
School of Information Science and Engineering，Central South University, China
Co-Organized by：
School of Information Science and Engineering，Jishou University, China

For Attendees

Conference

Dates August 23–27, 2017

Venue Sunshine Hotel, Zhangjiajie (张家界阳光酒店)

Reception

Time 16:00–20:00, August 23, 2017 (Only for workshop of CAD/Graphics 2017)

09:00–20:00, August 24, 2017

Location Sunshine Hotel Lobby, Zhangjiajie (张家界阳光酒店大堂)

Dining

Please show your coupon when dining

Lunch 12:00–13:30

Supper 18:00–19:30

Banquet 18:00–20:00, August 25

Music Salon 20:00–21:30, August 26

Hotels

Sunshine Hotel Zhangjiajie

张家界阳光酒店

Address No.2 Yongding Dadao East, Zhangjiajie, Hunan, China

地址 中国张家界市永定大道东2号

Tel (+86)-744-855 8888 **Fax** (+86)-744-855 9999

www.sunshinehotelzjj.com

Vienna hotel(Zhangjiajie north railway station branch)

维也纳酒店张家界火车北站店

Address No.1 Zhanqian Road of North Railway Station, Zhangjiajie, Hunan, China

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Welcome to join in the on-site
conference WeChat group for information.

Introduction

2017 International Conference on Computer-Aided Design and Computer Graphics (CAD/Graphics 2017) and 2017 Asian Conference on Design and Digital Engineering (ACDDE 2017), co-hosted by School of Information Science and Engineering, Central South University, China, and School of Information Science and Engineering, Jishou University, China, will be held during August 23-27, 2017, in Zhangjiajie, Hunan, China.

CAD/Graphics 2017

CAD/Graphics is sponsored by Chinese Computer Federation (CCF) and its Technical Committee on Computer-Aided Design and Computer Graphics (CAD&CG), is also a biannual international conference since 1989. It provides a worldwide forum for international researchers and developers to exchange new ideas on computer-aided design, computer graphics, electronic design automation, visualization etc. Previous conferences in this series were held in Xi'an (2015), Hong Kong (2013), Jinan (2011), and Hangzhou (1999) respectively.

A total of 196 technical papers were submitted and reviewed by an international program committee with expert reviewers from all over the world. At least three members of the program committee were invited to review and discuss each submission. After being revised by the authors, conditionally accepted papers underwent a second round of reviewing. A total of 34 refereed papers were selected for publication in a special issue of Computers & Graphics (C&G); 12 refereed papers were selected for publication in special issues of Journal of Computer Science and Technology (JCST); and 11 refereed papers were selected for publication in special issues of Chinese Journal of Electronics (CJE). All refereed papers will be selected for plenary presentation at the conference. An additional 9 submissions were chosen for poster presentation at the conference. Three papers will be awarded as Best Paper Award of CAD/Graphics 2017, judged and selected by an Award Committee.

ACDDE 2017

ACDDE is sponsored by China Society for Industrial and Applied Mathematics, Society for Computational Design and Engineering, and Japan Society of Mechanical Engineers and is also an annual international conference. It covers state-of-the-art developments in design and digital engineering technologies as well as scientific, industrial, and business applications. Previous conferences in this series were held in Jeju, Korea (2010), Shanghai, China (2011), Sapporo, Japan (2012), Seoul, Korea (2013), Jinan, China (2014), Fukuoka, Japan (2015), Jeju, Korea (2016) respectively.

A total of 71 papers, including 37 full papers (China 20, Korea 10, Japan 7) and 34 abstracts (China 7, Korea 26, Japan 1) were submitted and reviewed by an international program committee with expert reviewers. Excellent papers will be selected to be published in Applied Mathematics-A Journal of Chinese Universities (Series B), Journal of Advanced Mechanical Design, Systems, and Manufacturing, or Journal of Computational Design and Engineering (all 3 journals are SCIE indexed) after the conference. Part of submissions will be selected for plenary presentation at the conference, including 6 mini-workshops on Geometric Computing, Approximating and Processing (19), Computational Design and Optimization (19), Visual Media and Interaction (6), Emerging Applications of CAD (8), PLM & Smart Manufacturing (4), and Design & Architecture & Shipbuilding (6). Four papers will be awarded as Best Paper Award of ACDDE 2017, judged and selected by an Award Committee.

Keynote Speakers

The joint conference program also includes four invited presentations, by Hao (Richard) Zhang (Simon Fraser University, Canada), Matti Pietikäinen (University of Oulu, Finland), Ladislav Kavan (University of Utah, USA), and Gregory F. Welch (University of Central Florida, USA), all leading researchers in their fields.

Pre-Conference Workshop

Just before the conference, there will be a one-day workshop on Computational Fabrication: Simulation, Optimization and Evaluation, organized by Prof. Jin Huang and Prof. Weiwei Xu from Zhejiang University, China. Six international speakers, including Shenghui Liao (Central South University, China), Charlie Wang (Delft University of Technology, The Netherland), Yizhong Zhang (Microsoft Research Asia, China), Jernej Barbic (University of Southern California, USA), Lei Yu (ASW, Archi-Solution Workshop, China), and Daniele Panozzo (New York University, USA)., will present their recent works on computational fabrication and its applications at the workshop.

Acknowledgments

We would like to acknowledge the efforts and contributions of the many people who helped to make this conference a success. Members of the program committee spent countless hours carefully reading and reviewing the submitted papers. We thank Prof. Joaquim Jorge, Editor-in-Chief of Computers & Graphics, for his great support on the conference. The organization chair, Prof. Beiji Zou, and his team at Central South University, China, with CAD/Graphics 2017 Program Committee Co-Chairs Prof. Ligang Liu and Prof. Kai Xu together has put in a tremendous amount of time and effort into organizing the conference. Last, but not least, we thank all the authors who submitted papers to this joint conference, as their ongoing efforts made this conference a huge success.

CAD/Graphics 2017

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ACDDE 2017

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Society for Computational Design and Engineering

Aug. 23 Thursday		
Time	Contents	Venue
16:00-20:00	On-site registration, Reception (Only for workshop)	Lobby

Aug. 24 Thursday		
Time	Contents	Venue
09:00-20:00	On-site registration, Reception	Lobby
09:00-12:00	CAD/Graphics Workshop on Computational Fabrication: Simulation, Optimization and Evaluation(1)	Hibiscus A Room 芙蓉A厅
12:00-13:30	Lunch	Cafeteria on the 1st floor 一楼自助餐厅
14:30-17:20	CAD/Graphics Workshop on Computational Fabrication: Simulation, Optimization and Evaluation(2)	Hibiscus A Room 芙蓉A厅
18:00-19:30	Supper	Cafeteria on the 1st floor 一楼自助餐厅
19:30-	CCF CAD&CG Technical Committee Meeting	Room 206

Aug. 25 Friday		
Time	Contents	Venue
08:30-08:50	Opening	Hibiscus Room 芙蓉厅
08:50-09:40	Keynote Talk 1	Hibiscus Room 芙蓉厅
09:40-10:10	Gaheon Award Ceremomy and Presentation	Hibiscus Room 芙蓉厅
10:10-10:30	Coffee Break	
10:30-12:00	CAD/Graphics Paper Session 1	Room V3
10:30-12:00	CAD/Graphics Paper Session 2	Room V4
10:30-12:15	ACDDE Paper Session 1	Room 205
10:30-12:15	ACDDE Paper Session 2	Room 210
12:30-13:30	Lunch	Cafeteria on the 1st floor 一楼自助餐厅
14:00-15:30	CAD/Graphics Paper Session 3	Room V3
14:00-15:30	CAD/Graphics Paper Session 4	Room V4
14:00-15:30	ACDDE Paper Session 3	Room 205
14:00-15:30	ACDDE Paper Session 4	Room 210
15:30-15:50	Coffee Break	
15:50-16:40	Keynote Talk 2	Hibiscus Room 芙蓉厅
16:40-17:10	Poster Fast Forward	Hibiscus Room 芙蓉厅
17:15-17:45	Poster Discussion	The Corridor Outside Room V3 & V4
16:45-17:45	ACDDE Paper Session 5	Room 205
18:00-20:00	Banquet	Hibiscus Room 芙蓉厅

Aug. 26 Saturday		
Time	**Contents**	**Venue**
08:30-09:20	Keynote Talk 3	Sunshine Hall（阳光厅）
09:30-10:30	CAD/Graphics Paper Session 5	Room V3
09:30-10:30	CAD/Graphics Paper Session 6	Room V4
09:30-10:30	ACDDE Paper Session 6	Room 205
09:30-10:30	ACDDE Paper Session 7	Room 210
10:30-10:50	**Coffee Break**	
10:50-12:20	CAD/Graphics Paper Session 7	Room V3
10:50-12:20	CAD/Graphics Paper Session 8	Room V4
10:50-12:20	ACDDE Paper Session 8	Room 205
10:50-12:20	ACDDE Paper Session 9	Room 210
12:30-13:30	**Lunch**	Cafeteria on the 1st floor 一楼自助餐厅
14:00-15:30	CAD/Graphics Paper Session 9	Room V3
14:00-15:30	CAD/Graphics Paper Session 10	Room V4
14:00-15:30	ACDDE Paper Session 10	Room 205
14:00-15:30	ACDDE Paper Session11	Room 210
15:30-15:50	**Coffee Break**	
15:50-16:40	Keynote Talk 4	Sunshine Hall（阳光厅）
16:40-17:00	Closing	Sunshine Hall（阳光厅）
18:00-19:30	**Supper**	Cafeteria on the 1st floor 一楼自助餐厅
20:00-21:30	Music Salon	Cafeteria Outfield 一楼自助餐厅外场
Aug. 27 Sunday		
Time	**Contents**	**Venue**
08:30-11:00	ACDDE Panel Discussion on Design and Digital Engineering, Post-conference Excursion	

Program

Aug. 24 Thursday		
09:00-20:00	ACDDE: On-site registration, Reception	
09:00-17:30	Workshop on Computational Fabrication: Simulation, Optimization and Evaluation http://cadcg2017.csu.edu.cn/workshop_web/index.html **Venue** Hibiscus A Room（芙蓉A厅）	

Time	Title	Speaker
09:00-09:50	*Integrated digital medical software for 3D printing*	**Shenghui Liao**, Central South University, China
10:00-10:50	*Shape and Topology Optimization for Additive Manufacturing*	**Charlie Wang**, Delft University of Technology, The Netherland
11:00-11:50	*From Appearance to Deformation*	**Yizhong Zhang**, Microsoft Research Asia, China
14:30-15:20	*Interactive Material and Damping Design*	**Jernej Barbic**, University of Southern California, USA
15:30-16:20	*Geometry Based Digital Fabrication in Architecture*	**Lei Yu**, ASW, Archi-Solution Workshop, China
16:30-17:20	*Generalized Tangent Vector Fields*	**Daniele Panozzo**, New York University, USA
19:30-	CCF CAD&CG Technical Committee Meeting Venue Room 206	

Aug. 25 Friday	
08:30-08:50	**Opening Remarks** (CAD/Graphics 2017 & ACDDE 2017) (Chair: Ligang Liu) Venue: Hibiscus Room（芙蓉厅） • Organization chairs: Welcoming remarks • CAD/Graphics chairs: Conference remarks • ACDDE chairs: Conference remarks
08:50-09:40	**Keynote Talk 1** (Chair: Ligang Liu) Venue: Hibiscus Room（芙蓉厅） **Richard Hao Zhang**, Simon Fraser University, Canada *Can Machines Learn to Generate 3D Shapes?*
09:40-10:10	**Gaheon Award Ceremony and Presentation** (Chair: Sang Hun Lee) Venue: Hibiscus Room（芙蓉厅）
10:10-10:30	Coffee Break

10:30-12:00	**CAD/Graphics Paper Session 1: 3D Printing and Customized Design** (Chair: Daniele Panozzo) Venue: Room V3	
Time	**Title**	**Speaker (in bold)**
10:30-10:45	*Computing Interior Support-free Structure via Hollow-to-Fill Construction*	**Yang Yang**, Shuangming Chai and Xiao-Ming Fu
10:45-11:00	*Mechanical Assembly Packing Problem using Joint Constraints*	Mingliang Xu, Ningbo Gu, Weiwei Xu, Mingyuan Li, **Junxiao Xue** and Bing Zhou
11:00-11:15	*Anisotropic porous structure modeling for 3D printed objects*	Jianming Ying, **Lin Lu**, Lihao Tian, Xin Yan and Baoquan Chen
11:15-11:30	*Optimized Sequence Planning for Multi-axis Hybrid Machining of Complex Geometries*	Li Chen, **Ke Xu** and Kai Tang
11:30-11:45	*Convertible Furniture Design*	**Jie Zhou** and Xuejin Chen
11:45-12:00	*Personalized Food Printing for Portrait Images*	Haiming Zhao, Jufeng Wang, Xiaoyu Ren, Yongliang Yang, Jingyuan Li and **Xiaogang Jin**

10:30-12:00	**CAD/Graphics Paper Session 2: Image Processing** (Chair: Xuejin Chen) Venue: Room V4	
Time	**Title**	**Speaker (in bold)**
10:30-10:45	*Classified optic disc localization algorithm based on verification model*	Beiji Zou, **Changlong Chen** and Zailiang Chen
10:45-11:00	*Hybrid-feature-guided Lung Nodule Type Classification on CT Images*	**Jingjing Yuan**, Xinglong Liu, Fei Hou, Hong Qin and Aimin Hao
11:00-11:15	*Exclusive Grouped Spatial Hashing*	**Weiwei Duan**, Jianxin Luo, Guiqiang Ni, Bin Tang, Qi Hu and Yi Gao
11:15-11:30	*Efficient image decolorization with a multimodal contrast-preserving measure*	**Hanli Zhao**, Haining Zhang and Xiaogang Jin
11:30-11:45	*Effcient Image Dehazing Using Boundary Condition and Local Contrast*	**Bin Liao**, Peng Yin and Chunxia Xiao
11:45-12:00	*Object Tracking Using Langevin Monte Carlo Particle Filter and Locality Sensitive Histogram based Likelihood Model*	**Fasheng Wang**, Baowei Lin and Xucheng Li

10:30-12:15	**ACDDE Paper Session 1：Computational Design and Optimization (I)** (Chair: Myung Il Roh) Venue: Room 205	
Time	**Title**	**Speaker (in Bold)**
10:30-10:45	*A Study on Prediction of Material Properties According to the Shape of Porous Structure in Composite Ceramic Material*	**Lee Dong Gyu** and Cho Seong Wook
10:45-11:00	*The estimation of parameters of penetration equation comparing numerical analysis and penetration experimental results*	**Ahyoun Cho**, Kang Park and Gunin Kim
11:00-11:15	*Functional Modeling of Hydro-pneumatic Suspension for Vulnerability Assessment*	**Myunghoon Nam**, Kang Park and Hyung Chul Kim
11:15-11:30	*Estimation on Exit Angles of Penetration for Oblique Impacts Using Numerical Analysis*	**Ju Gyeong Shin**, Kang Park and Gun In Kim
11:30-11:45	*Optimization of conveyor rollers arrangement for stable FPD (Flat Panel Display) glass transfer*	Seungeun Park, Kang Park and **Hyung Chul Kim**
11:45-12:00	*Visualization of Possible Sink Marks using Thickness Analysis of Finely Tessellated Solid Model*	Masatomo Inui, **Shunsuke Ohnishi** and Nobuyuki Umezu
12:00-12:15	*A Study of UGV System Effectiveness Using Terrain Cell with Repeater in a Battlefield*	**Sun Woo Shin**, Jae Yeong Lee and Chong Man Kim

10:30-12:15	**ACDDE Paper Session 2：Geometric Computing, Approximating and Processing (I)** (Chair: Na Lei) Venue: Room 210	
Time	**Title**	**Speaker (in Bold)**
10:30-10:45	*A New Formulation of the Log-aesthetic Space Curve based on Similarity Geometry*	**Kenjiro Miura**, Sho Suzuki, R.U. Gobithaasan and Shin Usuki
10:45-11:00	*Using Geometric characters to adjust shapes of C-Bézier curves*	**Lingyu Li**, Wanqiang Shen and Guozhao Wang
11:00-11:15	*Data Driven Composite Shape Descriptor Design for Shape Retrieval with a VoR-Tree*	**Zihao Wang**, Hongwei Lin and Chenkai Xu
11:15-11:30	*Indoor positioning with a small area Zigbee network*	**Youngdoo Kim**, Hoik Jang and Young Choi
11:30-11:45	*Image-Based Materials Design of Articulated Deformable Objects*	**Guodong Wei** and Guiqing Li
11:45-12:00	*A study on generation of product image corresponding to the cognitive and emotional condition using GANs algorithm*	**Seung Ha Kim**, Nam-Kyu Kang, Ho-Joon Son and Soo-Hong Lee
12:00-12:15	*BULL!: A Geometric Library for 2- and 3-spheres Using Voronoi Diagrams and Their Dual Structures*	**Deok-Soo Kim**, Youngsong Cho, Joonghyun Ryu, Mokwon Lee, Jehyun Cha and Chanyoung Song
12:15-14:00	Lunch Break	

14:00-15:30	**CAD/Graphics Paper Session 3: Simulation** (Chair: Jin Huang) Venue: Room V3	
Time	**Title**	**Speaker (in Bold)**
14:00-14:15	*As-rigid-as-possible solid simulation with oriented particles*	**Min Gyu Choi** and Jehee Lee
14:15-14:30	*Surface tension model based on implicit incompressible SPH for fluid Simulation*	**Xiaokun Wang**, Xiaojuan Ban, Yalan Zhang, Sinuo Liu and Pengfei Ye
14:30-14:45	*Stable Real-Time Surgical Cutting Simulation of Deformable Objects Embedded with Arbitrary Triangular Meshes*	**Shiyu Jia**, Zhenkuan Pan, Guodong Wang, Weizhong Zhang and Xiaokang Yu
14:45-15:00	*Shadow Traffic: A Unified Model for Abnormal Traffic Behavior Simulation*	**Hua Wang**, Mingliang Xu, Fubao Zhu, Zhigang Deng, Yafei Li and Bing Zhou
15:00-15:15	*Self-adaptive Algorithm for Simulating Sand Painting in Real-time*	Luyan Jiang, Meng Yang, Shu Ding, **Xinyang Zhang**, Shu Yan and Gang Yang
15:15-15:30	*Computer-Assisted Path Planning for Minimally Invasive Vascular Surgery*	Dongjin Huang, **Pengbin Tang**, Yin Wang, Hejuan Li and Wen Tang

14:00-15:30	**CAD/Graphics Paper Session 4: CAGD** (Chair: Chungang Zhu) Venue: Room V4	
Time	**Title**	**Speaker (in Bold)**
14:00-14:15	*Planar cubic G1 and quintic G2 Hermite interpolations via curvature variation minimization*	**Lizheng Lu**, Chengkai Jiang and Qianqian Hu
14:15-14:30	*Progressive iterative approximation of SOR for non-uniform cubic B-spline curve and surface interpolation*	**Liangchen Hu**, Huahao Shou and Shiaofen Fang
14:30-14:45	*Untrimming: Precise conversion of trimmed-surfaces to tensor-product surfaces*	**Fady Massarwi**, Boris Van Sosin and Gershon Elber
14:45-15:00	*Efficiently computing feature-aligned and high-quality polygonal offset surfaces*	**Wenlong Meng**, Zhenyu Shu, Shiqing Xin, Hongbo Fu and Shuangmin Chen
15:00-15:15	*An Intersection Algorithm of Disk B-Spline Curves*	**Au Xuefeng**, Qian Fu, Zhongke Wu, Wang Xingce, Mingquan Zhou, Quan Chen and Hock Soon Seah
15:15-15:30	*Pre-positioning and Parsing Patterns for 3D Garment Modeling*	Dongliang Zhang, Jituo Li, **Yi Xiao**, Baobin Liu

14:00-15:30	**ACDDE Paper Session 3：Computational Design and Optimization (II)** (Chair: Masatomo Inui) Venue: Room 205	
Time	**Title**	**Speaker (in Bold)**
14:00-14:15	*IBEA-SVM: An Indicator-based Evolutionary Algorithm with Classification based Preselection Guided by SVM*	**Haoran Li**, Fazhi He and Jiashi Yong
14:15-14:30	*Design of multi-DOF micro feed platform based on hybrid compliant mechanism*	**Chen Zhang**, Ming Lu and Yun Song
14:30-14:45	*A Numerical Study on Lubrication Analysis of Oil Pump for Reciprocating Compressors*	**Gyu Jin Choi** and Seong Wook Cho
14:45-15:00	*A Numerical Study on the Factors Affecting the Failure of Curtain Wall with Double Glazed Glass in Fire*	**Min Geon Jeong**, Seong Wook Cho and Hong-Sun Ryou
15:00-15:15	*Numerical study on the effects of blood flow on the mechanical behavior of coronary stent*	**Wookjin Lee** and Seong Wook Cho
15:15-15:30	*A Numerical Study on the Effect of Sloshing according to the Shape of Baffles*	**Jinsu Kang** and Seong Wook Cho

14:00-15:30	**ACDDE Paper Session 4：Geometric Computing, Approximating and Processing (II)** (Chair: Ruofeng Tong) Venue: Room 210	
Time	**Title**	**Speaker (in Bold)**
14:00-14:15	*Robust mesh denoising based on collaborative filters*	Yan Xing, **Long Bai** and Jieqing Tan
14:15-14:30	*Packing Disks within a Circular Container using Voronoi Diagram*	**Joonghyun Ryu**, Mokwon Lee, Zhenzhi Feng, Donguk Kim, Kokichi Sugihara and Deok-Soo Kim
14:30-14:45	*Construction of the Voronoi Diagram of Ellipses*	Joonghyun Ryu, **Mokwon Lee**, Zhikai Ji, Ligang Liu and Deok-Soo Kim
14:45-15:00	*A new computational approach to the twists of bicubic Coons surfaces*	**Xiao Guo** and Xuli Han
15:00-15:15	*An Effective Shape Editing Framework Based On Example-Driven Technique*	**Xuzhou Qin**, Tieru Wu and Yipeng Liu
15:15-15:30	*A New Binary 5-point Curve Subdivision Scheme*	**Yan Xing**, Benyun Guo, Jieqing Tan and Peilin Hong
15:30-15:50	Coffee Break	

15:50-16:40	**Keynote Talk 2** (Chair: Falai Chen) Venue: Hibiscus Room（芙蓉厅） **Matti Pietikäinen**, University of Oulu, Finland *Face Analysis for Affective Computing*

16:40-17:45	**CAD/Graphics Poster Session** (Chair: Jiazhi Xia)

	Poster Fast Forward Venue: Hibiscus Room（芙蓉厅）	
16:40-17:10	*Piecewise Ruled/Developable Surface Approximation of General Freeform Surfaces*	Gershon Elber and **Myung-Soo Kim**
	Exemplar-Based Freckle Retouching and Skin Whitening	Tsung-Ying Lin, **Yu-Ting Tsai**, Tsung-Shian Huang, Wen-Chieh Lin and Jung-Hong Chuang
	User-Driven 3D Models Dynamic Classification Based on Interactive Nonnegative Matrix Factorization	**Fenggen Yu**, Zhongyu Sun, Panpan Shui and **Yan Zhang**
	Optical-flow-based precise vehicle ranging in dynamic ROI	**Xiaolin Sun**, Hui Chen and Yanyan Xu
	An adaptive configuration method of knots and data parameters for planar NURBS curve interpolation	**Liangchen Hu**, Huahao Shou and Jie Shen
	Learning Attention Analysis and Visualization for Classroom Auto-evaluation Based on Single-image PnP Head Pose Estimation	**Li Dongxing**, Liu Heng, Chang Wenquan, Xu Pengfei and Luo Zuying
	Efficient Physically Based Large-Scale Fluid-Solid Coupling	Shaoxiong Zhang, **Chenyang Chen**, Liuzhi Yang and Zhangye Wang
	Metric-based Curve Clustering and Feature Extraction in Flow Visualization	Lieyu Shi and **Guoning Chen**
	Image pierced carving on 3D shapes	**Sha He**, Weilai Xu, Jingru Yang, Yang Xia and Lin Lu
17:15-17:45	**Posters and Discussion** Venue: The Corridor Outside Room V3 & V4	

16:45-17:45	**ACDDE Paper Session 5：Emerging Applications of CAD (I)** (Chair: Liyan Zhang) Venue: Room 205	
Time	**Title**	**Speaker(in Bold)**
16:45-17:00	*Operability Assessment Metric for the Human-Robot Team and its Application*	**Sang Yeong Choi**
17:00-17:15	*A Development of the Drawing Quality Checking Application for Analysis Automation of SRtP*	**Dae-Hee Park**, Philippe Lee, Daeho Lee, Youngmi Park, Minwoo Kang and Wonsun Ruy
17:15-17:30	*Development of Design System for Crack Patterns on Cup Surface Based on KANSEI*	**Mai Misaka** and Hideki Aoyama
17:30-17:45	*Deep reinforcement learning for calibration of 2D-3D registration*	**Eungjune Shim**, Hannah Kim, Laehyun Kim and Youngjun Kim
	Banquet	

Saturday, August 26		
08:30-09:20	**Keynote Talk 3** (Chair: Deok-Soo Kim) Venue: Sunshine Hall（阳光厅） **Ladislav Kavan**, University of Utah, USA *Fast Physics-Based Simulation of Anatomical Models*	
09:30-10:30	**CAD/Graphics Paper Session 5: Face** (Chair: Xiaogang Jin) Venue: Room V3	
09:30-09:45	*3D Face Similarity Measure by Fréchet Distances of Geodesics*	**Junli Zhao**, Zhongke Wu, Zhenkuan Pan, Fuqing Duan, Jinhua Li, Zhihan Lv, Kang Wang and Yucong Chen
09:45-10:00	*Better Face Alignment via Better Initialization*	**Naiming Yao**, Hui Chen, Qingpei Guo and Hongan Wang
10:00-10:15	*Vectorized Point based Global Illumination on Intel MIC Architecture*	**Hengliang Zhu**, Zhiwen Shao, Yangyang Hao and Ma Lizhuang
10:15-10:30	*Quantitative analysis of dynamic ankle instability based on 4DCT images*	Lei Wang, **ZhiChu Duan**, Hai Xiao, Daqi Xu, Hongbin Lv, Beiji Zou and Jianzhong Hu
09:30-10:30	**CAD/Graphics Paper Session 6: Learning based methods** (Chair: Guoning Chen) Venue: Room V4	
Time	**Title**	**Speaker (in Bold)**
09:30-09:45	*A Unified Feature Representation and Learning Framework for 3D Shape*	**Panpan Mu**, Sanyuan Zhang, Yin Zhang and Xiang Pan
09:45-10:00	*Sequence Searching with CNN Features for Robust and Fast Visual Place Recognition*	**Dongdong Bai**, Chaoqun Wang, Bo Zhang, Xiaodong Yi and Xuejun Yang
10:00-10:15	*Joint analysis of shapes and images via deep domain adaptation*	**Zizhao Wu**, Yunhui Zhang, Ming Zeng, Feiwei Qin and Yigang Wang
10:15-10:30	*3D Shape Segmentation via Shape Fully Convolutional Networks*	**Pengyu Wang**, Yuan Gan, Panpan Shui, Fenggen Yu and Yan Zhang

09:30-10:30	ACDDE Paper Session 6：PLM & Smart Manufacturing (Chair: Deok-Soo Kim) Venue: Room 205	
Time	**Title**	**Speaker (in Bold)**
09:30-09:45	*A Registration Method Based on the Minimum Zone Criterion for Complex Surfaces Inspection with Tolerance Verification*	**Gaoshan Tan**, Liyan Zhang and Shenglan Liu
09:45-10:00	*The Structural Design and Optimization of a Panel–Based Fitting Robot*	**Zengrong Guo**, Dongliang Zhang, Sirui Feng, Siyuan Lin, **Yi Xiao** and Jituo Li
10:00-10:15	*Failure Prediction at Manufacturing Machine Using Environmental Sound Classification with Convolutional Neural Network*	**Namkyu Kang**, Seungha Kim and Soo-Hong Lee
10:15-10:30	*Failure cause analysis of electric locomotive using the Logistic regression*	**Min Seop So**, Hong-Bae Jun and Jong-Ho Shin

09:30-10:30	ACDDE Paper Session 7：Emerging Applications of CAD (II) (Chair: Caiming Zhang) Venue: Room 210	
Time	**Title**	**Speaker (in Bold)**
09:30-09:45	*Process Planning and Automatic Forming Program Generation for Additive Manufacturing*	**Ying Wang** and Hideki Aoyama
09:45-10:00	*Three-Dimensional Gaze Fixation Analysis Using Eye Tracking Glasses for Aesthetically Evaluating Objects*	**Ryo Takahashi**, Hiromasa Suzuki, Jouh Yeong Chew, Yutaka Ohtake, Yukie Nagai and Koichi Ohtomi
10:00-10:15	*A Novel Algorithm for Contact Detection Problem in Multi-step FEM*	**Yongcai Liu**, Yidong Bao and Wenliang Chen
10:15-10:30	*TransCAD: A translator of history-based CAD data based on the macro-parametrics approach*	**Youngki Kim**, Soonjo Kwon and Soonhung Han
10:30-10:50	Coffee Break	

10:50-12:20	**CAD/Graphics Paper Session 7: Modeling and Shape Analysis** (Chair: Lin Lv) Venue: Room V3	
10:50-11:05	*ExquiMo: An Exquisite Corpse Tool for Collaborative 3D Shape Design*	Warunika Ranaweera, Parmit Chilana and **Hao Zhang**
11:05-11:20	*Detection of Hierarchical Intrinsic Symmetry Structure in 3D Model*	**Hui Liu**, Jiazhi Xia and Jianer Chen
11:20-11:35	*Multi-scale surface reconstruction based on a curvature-adaptive signed distance field*	**Yizhi Tang** and Jieqing Feng
11:35-11:50	*Retrieving Indoor Objects: 2D-3D Alignment using Single Image and Interactive ROI-based Refinement*	**Fu Chang Liu**, Shuang Jian Wang, Dan Dan Ding, Qing Shu Yuan, Zheng Wei Yao and Zhi Geng Pan
11:50-12:05	*Modeling of Chinese Calligraphy Relief from Image*	Yu-Wei Zhang, Caiming Zhang, **Yanzhao Chen** and Hui Liu
12:05-12:20	*Non-rigid 3D shape partial matching using GD-DNA*	**Guoguang Du**, Congli Yin, Mingquan Zhou, Zhongke Wu and Yachun Fan

10:50-12:20	**CAD/Graphics Paper Session 8: CAD Systems and Design** (Chair: Jieqing Feng) Venue: Room V4	
Time	**Title**	**Speaker (in Bold)**
10:50-11:05	*Low-fidelity Prototyping with Simple Collaborative Tabletop Computer-aided Design Systems*	**Erdem Kaya**, Sema Alaçam, Yasin Findik and Selim Balcisoy
11:05-11:20	*Hierarchical layout deduction for furniture model retrieval*	**Wanbin Pan**, Yigang Wang and Zhongping Ji
11:20-11:35	*Random cutting plane approach for identifying volumetric features in a CAD mesh model*	**Lakshmi Priya M**, Shyam Sundar Kannan, Ameya Karve and Ramanathan Muthuganapathy
11:35-11:50	*An Efficient Technique to Reverse Engineer Minterm Preotection based Camouflaged Circuit*	Jiang Shan, **Xu Ning**, Wang Xueyan and Zhou Qiang
11:50-12:05	*Enhanced Vector Field Visualization via Lagrangian Accumulation*	Lei Zhang, Duong Nguyen and **Guoning Chen**
12:05-12:20	*Fold and Fit: Space Conserving Shape Editing*	Mohamed Ibrahim and **Dongming Yan**

10:50-12:20	**ACDDE Paper Session 8: Design & Architecture & Ship building** (Chair: Fazhi He) Venue: Room 205	
Time	**Title**	**Speaker (in Bold)**
10:50-11:05	*A Normative Modular Designing based on Hanok Framing Techniques*	**Soo-Hoon Park**
11:05-11:20	*Minimization of Risk in Design, Production, and Installation Process of Ships and Offshore Structures through Simulation*	**Myung-Il Roh**, Seung-Ho Ham, Ki-Su Kim, Hyewon Lee, Seung-Min Lee and Luman Zhao
11:20-11:35	*Hybrid Representation for CAD/CAM/CAE System: A Combination between B-Rep and Polyhedral Model*	**Cong Hong Phong Nguyen**, Suho Kim, Soo-Won Chae and Young Choi
11:35-11:50	*A Virtual Simulation of a Capsizing Ship in Stormy Weather Condition*	**Lin Wang**, Imgyu Kim and Soonhung Han
11:50-12:05	*Study on the Life Cycle Assessment based Green Design and Engineering of a Small Craft*	**Kiseok Jung**, Dongkun Lee, Daekyun Oh and Jonghun Woo
12:05-12:20	*Estimation Method for Freeboard at Preliminary Design Stage*	**Shin Seunghyun** and Ku Namkug

10:50-12:20	**ACDDE Paper Session 9: Visual Media and Interaction** (Chair: Hongwei Lin) Venue: Room 210	
Time	**Title**	**Speaker (in Bold)**
10:50-11:05	*A new haze removal algorithm for sky and river scenes*	**Jian Zhang**, Fazhi He and Xiao Chen
11:05-11:20	*3D Modeling Interface with Wireless Physical Entities*	**Hoik Jang**, Youngdoo Kim and Young Choi
11:20-11:35	*A note on object tracking in infrared images using adaptive thresholding and affine invariant feature detection*	**Ho-Kyun Jung** and Hyungjun Park
11:35-11:50	*Instrumental stability design using 3D printing*	**Hyun Jun Kim**
11:50-12:05	*Human-Centered Design of Motorcycle HUD using Immersive Virtual Reality Environment*	**Kenichiro Ito**, Hidekazu Nishimura and Tetsuro Ogi
12:05-12:20	*Moving object detection and measurement based on micro array lens in dynamic scenes*	Zou Jiancheng, **Weng Tengfan** and Li Zhengzheng
12:20-14:00	Lunch Break	

14:00-15:30	**CAD/Graphics Paper Session 9: Geometry Processing** (Chair: Xiaoming Fu) Venue: Room V3	
Time	**Title**	**Speaker (in Bold)**
14:00-14:15	*A gradient-domain-based geometry processing framework for point clouds*	**Hongxing Qin**, Jinlong He, Menghui Wang and Jiaqi Wang
14:15-14:30	*Wavelets based polygon soup consolidation*	Ling Hu, **Qinsong Li**, Shengjun Liu, Xinru Liu and Zheng Wang
14:30-14:45	*Multi-Scale Geometry Detail Hole-Filling on Surfaces via Empirical Mode Decomposition*	Xiaochao Wang, Linxin Guo, Jianping Hu, **Dongbo Zhang**, Hong Qin and Aimin Hao
14:45-15:00	*An automatic algorithm for repairing dental models based on contours*	**Jiahong Qian**, Deyan Tang, Yuwei Chu, Yubo Tao, Jun Lin and Hai Lin
15:00-15:15	*Hexahedral Mesh Quality Improvement via Edge-angle Optimization*	Kaoji Xu, Xifeng Gao and **Guoning Chen**
15:15-15:30	*Construction and analysis of non-stationary subdivision schemes based on iterations*	**Baoxing Zhang**, Hongchan Zheng and Hui Tong

14:00-15:30	**CAD/Graphics Paper Session 10: Rendering and Images** (Chair: Yu-Ting Tsai) Venue: Room V4	
Time	**Title**	**Speaker (in Bold)**
14:00-14:15	*Vectorized Point based Global Illumination on Intel MIC Architecture*	**Xiang Xu**, Lu Wang, Beibei Wang, Xiangxu Meng and Tamy Boubekeur
14:15-14:30	*Energy-efficient Global Illumination Algorithms for Mobile Devices using Dynamic Voltage and Frequency Scaling*	**Seongki Kim**, Takahiro Harada and Young J. Kim
14:30-14:45	*Automatic Anterior Lamina Cribrosa Surface Depth Measurement Based on Active Contour and Energy Constraint*	Zailiang Chen, **Peng Peng**, Beiji Zou, Hailan Shen, Hao Wei and Rongchang Zhao
14:45-15:00	*Real-time Generation of Reflections in the Optimized Image Space*	Yanci Zhang, Hanyou Yu, Ruilin Xie, Rongrong Meng, Wenjie Ren, **Kaili Xie** and Yanli Liu
15:00-15:15	*Estimation of vehicle position and pose with monocular camera at urban road intersections*	**Yuan Jinzhao**, Hui Chen, Bin Zhao and Yanyan Xu
15:15-15:30	*Supervised Vessel Classification Based on Feature Selection*	Beiji Zou, **Yao Chen**, Chengzhang Zhu, Zailiang Chen and Ziqian Zhang

14:00-15:30	ACDDE Paper Session 10：Computational Design and Optimization (III) (Chair: Soonhung Han) Venue: Room 205	
Time	**Title**	**Speaker (in Bold)**
14:00-14:15	*Development of a Smart Machining System for Optimizing Feedrates*	**Hong-Seok Park**, Duc-Viet Dang and Bowen Qi
14:15-14:30	*Toward a robust optimization method for ship route planning considering cost and safety aspect*	**Ki-Su Kim**, Myung-Il Roh and Sung-Min Lee
14:30-14:45	*Navigation system for supporting all-terrain crane operators based on acquisition of top-view environmental images and operation state*	**Yu Wang**, Hiromasa Suzuki and Hiroyuki Katayama
14:45-15:00	*Uniformity-Testing Level Set Evolution for Image Segmentation*	**Li Zhong**, Caiming Zhang, Xiaofeng Zhang, Shixiang Jia and Qiang Guo
15:00-15:15	*Reverse design modeling of power generation gas turbine blade*	**Binbin Fu**, Sangho Park, Jungmin Kim, Yeonghak Kim, Dongkwan Kim and Hyun-Sun Choi
15:15-15:30	*Thermal Analysis of power generation gas turbine blade*	**Jungmin Kim**, Sangho Park, Binbin Fu, Yeonghak Kim, Kim Dongkwan and Hyun-Sun Choi

| 14:00-15:30	ACDDE Paper Session 11：Geometric Computing, Approximating and Processing (III) (Chair: Tieru Wu) Venue: Room 210	
Time	**Title**	**Speaker (in Bold)**
14:00-14:15	*Development of a Parametric Design System for Early Stage Automobile Exterior Design*	**Sho Suzuki**, Shoichiro Taniguchi, Shin Usuki and Kenjiro Miura
14:15-14:30	*Least Square Fitting Method for 3D data by Using Multiple Weighted Progressive Iterative Approximation*	**Li Zhang**, Zhonghua Lu, Huanhuan Ma and Jieqing Tan
14:30-14:45	*Efficient r-adaptive isogeometric analysis with harmonic mapping and monitor function approach*	**Gang Xu**, Laixin Shu, Ningning Sun, Yufan Zhu, Jinlan Xu and Tahsin Khajah
14:45-15:00	*G2 interpolation of free form curve network by biquintic quasi-developable Gregory patches*	**Dangfu Yang**, Shengjun Liu, Xinru Liu and Yuansheng Zhou
15:00-15:15	*Moving frame and integrable system of a discrete centroaffine indefinite surface*	**Yun Yang**
15:15-15:30	*Focus+Context Visualization Based on Optimal Mass Transportation*	Kehua Su, **Na Lei**, Li Cui and Xianfeng Gu
15:30-15:50	Coffee Break	

15:50-16:40	**Keynote Talk 4** (Chair: Qunsheng Peng) Venue: Sunshine Hall（阳光厅） **Gregory F. Welch**, The University of Central Florida, USA *Awareness and Influence of Human Surrogates in Augmented Reality*
16:40-17:00	**Closing Session** (Chair: Hujun Bao) Venue: Sunshine Hall（阳光厅） • Best paper awards • ACDDE 2018 introduction • Closing remarks
18:00-20:00	**Supper**
20:00-21:30	**Music Salon**
Sunday, August 27	
08:30-11:00	ACDDE: Panel Discussion on Design and Digital Engineering, Post-conference Excursion

Keynote Talk 1

Can Machines Learn to Generate 3D Shapes?

Hao (Richard) Zhang, Professor, Simon Fraser University, Canada.

Abstract At heart, computer aided design and graphics are both about synthesis and creation. Early success has been obtained on training deep neural networks for speech and image syntheses, while similar attempts on learning generative models for 3D shapes are met with difficult challenges. In this talk, I will first go over how the sub-field of 3D shape modeling and synthesis in computer graphics has evolved, from early model-driven approaches to recent data-driven paradigms, and highlight the challenges we must tackle. I would argue that the ultimate goal of 3D shape generation is not for the shapes to look right; they need to serve their intended (e.g., functional) purpose with the right part connection, arrangements, and geometry. Hence, I advocate the use of structural representations of 3D shapes and show our latest work on training machines to learn one such representation and an ensuing generative model. Finally, I would like to venture into creative modeling, perhaps a new territory in machine intelligence: can machines learn to generate 3D shapes creatively?
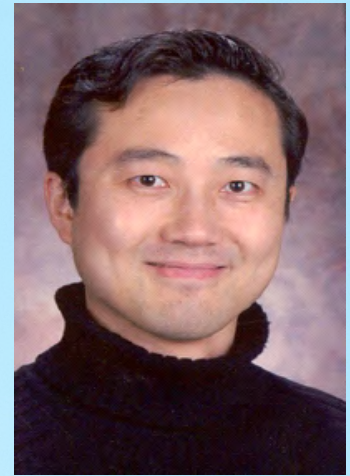
Brief Biography Hao (Richard) Zhang is a full professor in the School of Computing Science at Simon Fraser University (SFU), Canada, where he directs the graphics (GrUVi) lab. He obtained his Ph.D. from the Dynamic Graphics Project (DGP), University of Toronto, and M.Math. and B.Math degrees from the University of Waterloo, all in computer science. Richard's research is in computer graphics with a focus on geometry modeling, shape analysis, 3D content creation, and computational design and fabrication. He has published more than 100 papers on these topics. He is an editor-in-chief of Computer Graphics Forum and an associate editor of several other journals. He has served on the program committees of all major computer graphics conferences including SIGGRAPH (+Asia), Eurographics, Symposium on Geometry Processing (SGP), among others, and is SIGGRAPH Asia 2014 course chair and a paper co-chair for SGP 2013 and Graphics Interface 2015. He received an NSERC DAS (Discovery Accelerator Supplement) Award in 2014, the Best Paper Award from SGP 2008, a Faculty of Applied Sciences Research Excellence Award at SFU in 2014, a National Science Foundation of China (NSFC) Overseas, Hongkong, and Macau Scholar Collaborative Research Award in 2015, and is an IEEE Senior Member. For his university service, he received the SFU Dean of Graduate Studies Awards for Excellence in Leadership in 2016. He is on sabbatical as a visiting professor at Stanford University in 2016-2017.
E-mail: haoz@cs.dot.sfu.ca
Website: http://www.cs.sfu.ca/~haoz/.

Keynote Talk 2
Face Analysis for Affective Computing
Matti Pietikäinen, Professor, University of Oulu, Finland.

Abstract Human faces contain lots of information, including identity, demographic characteristics, emotions, direction of attention, visual speech - and even invisible information such as micro-expressions and heart rate. This information can be used, for example, in developing systems for various applications of affective computing. In recent years, we have been investigating various methods needed for building such systems. The first part of this talk provides an introduction to the problem area and potential applications. Then, it overviews our recent progress in face descriptors, face and facial expression recognition, pain analysis from facial expressions, group-level happiness analysis, micro-expression analysis, heart rate measurement from videos, visual speech analysis, and multimodal emotion analysis. Finally, some future challenges are discussed.

Brief Biography Matti Pietikäinen received his Doctor of Science in Technology degree from the University of Oulu, Finland. He is currently a professor and senior research advisor at the Center for Machine Vision and Signal Analysis of the University of Oulu. From 1980 to 1981 and from 1984 to 1985, he visited the Computer Vision Laboratory at the University of Maryland. He has made pioneering contributions, e.g. to local binary pattern (LBP) methodology, texture-based image and video analysis, and facial image analysis.He has authored over 340 refereed papers in international journals, books, and conferences. His research is frequently cited, and its results are used in various applications around the world. Dr. Pietikäinen was Associate Editor of IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Forensics and Security and Pattern Recognition journals, and currently serves as Associate Editor of Image and Vision Computing journal. He was President of the Pattern Recognition Society of Finland from 1989 to 1992, and was named its Honorary Member in 2014. From 1989 to 2007 he served as Member of the Governing Board of International Association for Pattern Recognition (IAPR), and became one of the founding fellows of the IAPR in 1994. He is IEEE Fellow for contributions to texture and facial image analysis for machine vision. In 2014, his research on LBP-based face description was awarded the Koenderink Prize for Fundamental Contributions in Computer Vision.
E-mail: mkp@ee.oulu.fi
Website: http://www.cse.oulu.fi/MattiPietikainen.

Keynote Talk 3
Fast Physics-Based Simulation of Anatomical Models
Ladislav Kavan, Assistant Professor, University of Utah, USA.

Abstract Realistic modeling of the human body in computer animation and biomechanics requires us to simulate the mechanical behavior of soft tissues, such as muscles and fat. This is computationally expensive because of the complicated geometry and physics of anatomical structures. I will present our Quasi-Newton methods for fast numerical simulation of deformable solids, starting from mass-spring systems, generalizing to Projective Dynamics and more general hyperelastic materials discretized using linear finite elements. These numerical techniques help us accelerate anatomically-based simulations in projects such as "Computational Bodybuilding", where we simulate hypertrophy or atrophy of muscles and fat. Even more challenging is the corresponding inverse problem, where we are given surface 3D scans of the human body as input and the goal is to estimate the unobserved shapes and sizes of the bones, muscles, and fat tissues. I will conclude the talk with our recent work on anatomically-based animation of the human face. Facial muscles pull on the skin and each other in order to generate facial expressions. Physics-based animation of the face allows us to add effects such as external forces (gravity / contact / wind) or even visualize the outcomes of facial surgery procedures.

Brief Biography Ladislav Kavan is an assistant professor of computer science at the University of Utah. Prior to joining Utah, he was an assistant professor at the University of Pennsylvania and research scientist at Disney Interactive Studios. Ladislav's research focuses on interactive computer graphics, physics-based animation, and geometry processing. His dual quaternion skinning algorithm has become a popular method to display animated 3D characters. More recently, he is exploring numerical methods in physics-based animation, with applicationsrelated to simulating the human body and the face. His goal is to combine computer graphics with biomechanics and medicine. Ladislav is a member of the ACM SIGGRAPH community and serves as an Associate Editor for ACM Transactions on Graphics.
E-mail: ladislav.kavan@gmail.com
Website: https://www.cs.utah.edu/~ladislav/.

Keynote Talk 4

Awareness and Influence of Human Surrogates in Augmented Reality
Gregory F. Welch, Professor, The University of Central Florida, USA.

Abstract A surrogate or "stand-in" for a human can be realized by a real human such as an actor, or a technological human such as a virtual human, including "avatars" (controlled by humans) or "agents" (controlled by computer programs). While virtual humans can afford richness and flexibility, they are typically unaware of their surroundings and unable to affect them. To fully realize the potential of Augmented Reality (AR), virtual objects and people should be seamlessly integrated into the physical reality all around us, exhibiting both awareness of and the ability to affect real events, objects, and people. In this talk I will share some examples of human surrogates, including both virtual and physical-virtual surrogates, some research demonstrating the effects of surrogate awareness, and ideas for the future of human surrogates in AR.

Brief Biography Gregory Welch is a Professor and the Florida Hospital Endowed Chair in Healthcare Simulation at the University of Central Florida College of Nursing. A computer scientist and engineer, he also has appointments in the College of Engineering and Computer Science and in the Institute for Simulation & Training. Welch earned his B.S. in Electrical Engineering Technology from Purdue University (highest distinction), and his M.S. and Ph.D. in Computer Science from the University of North Carolina at Chapel Hill (UNC). Previously, he was a research professor at UNC. He also worked at NASA's Jet Propulsion Laboratory and at Northrop-Grumman's Defense Systems Division. His research interests include human-computer interaction, human motion tracking, virtual and augmented reality, computer graphics and vision, and training related applications.
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