

Wei Pan

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Male, Date of Birth: 1990/12/26

Education

Singapore University of Technology and Design

Ph.D

Singapore

Sep 2013 – 2018

Pillar of Engineering Product Development

Related courses: Modelling and Optimization; Probability and Statistics; Machine Learning; Algorithm and Data Structure, etc.

Zhejiang University

B.Eng, 3.60/4.0

Hangzhou, China

Chu KoChen Honors College in Optical Engineering

Aug 2009–July 2013

Related courses: Advanced Mathematics; Signal Processing; Photonics; Phisical Optics, etc.

Research Interests

Machine Learning, Mesh Processing, Computational Geometry, Geometric Learning, Rapid Prototyping, Computer Aided Design, Algorithm and Optimization, Automation Design

Publications

Articles

1. Hao, J., Liu, J., Li, J., **Pan Wei**, et al. (2022). AI-enabled Automatic Multimodal Fusion of Cone-Beam CT and Intraoral Scans for Intelligent 3D Tooth-Bone Reconstruction and Clinical Applications. arXiv preprint arXiv:2203.05784.
2. Shuaijun Chen, Jinxi Wang, **Wei Pan**, Shang Gao, Meili Wang, Xuequan Lu. "Towards Uniform Point Distribution in Feature-preserving Point Cloud Filtering", arXiv:2201.01503, 2022.
3. Lei Lu, Zhaoyi Jia, **Wei Pan**, Qinghui Zhang, Mengya Zhang, and Jiangtao Xi. "Automated reconstruction of multiple objects with individual movement based on PSP", Optics Express, 2020
4. Chaofan Dai, **Wei Pan**, Xuequan Lu. "Segmentation Based Mesh Denoising" arXiv preprint arXiv:2008.01358, 2020.
5. **Wei Pan**, Yuanhao Gong, Wenming Tang, Jun Liu, Guoping Qiu. "HLO: Half-kernel Laplacian Operator for Surface Smoothing." Computer-Aided Design, 2020: 102807.
6. Wenming Tang, Yuanhao Gong, Kanglin Liu, Jun Liu, **Wei Pan**, Bozhi Liu, Guoping Qiu, "Gaussian Curvature Filter on 3D Mesh", arXiv preprint arXiv:2003.09178, 2020.
7. Iteratively weighted principal component analysis and orientation consistency for normal estimation in point cloud. Bo Wen, Bo Tao, **Wei Pan**, Guozhang Jiang. International Journal of Wireless and Mobile Computing 19 (3), 267-275.
8. **Wei Pan**, Yuanhao Gong, Guoping Qiu. "Parallel Curvature Filter for High Performance

- Image Processing.", International Workshop on Advanced Image Technology (IWAIT) 2019. Vol. 11049. International Society for Optics and Photonics, Singapore.
9. **Wei Pan**, Lujie Chen. "Transformation of LEGO Models.", Computer Aided Design and Applications, 2018
 10. **Wei Pan**, Lujie Chen. "Design of LEGO assembly transformation." in Proceedings of CAD'17, Okayama, Japan, 2017. ([link](#))
 11. **Wei Pan**, Lujie Chen, and Stylianos Dritsas. "Pick-and-place process sequencing for transformation of rasterized 3D structures." Automation in Construction 75 (2017): 56-64. doi: j.autcon.2016.12.007
 12. **Wei Pan**, Lujie Chen. "Moving Sequence Generation Based on Hungarian Method for Pick-and-Place Process." page 47-52, in Proceedings of CAD'15, London, United Kingdom, 2015. ([link](#))
 13. Si Guang Yuan, Eunice Sok Ping Leong, **Wei Pan**, Chan Choy Chum, and Yan Jun Liu. "Plasmon-induced transparency in coupled triangle-rod arrays." Nanotechnology 26, no. 2 (2014): 025201.

Patents

1. (China Patent) 潘威, 刘帆, 曹玲, 卢盛林. 一种基于点集特征和区域连通性的快速三维数据清理方法. 2022.02.28
2. (China Patent) 唐雅茹, 潘威, 曹玲, 卢盛林. 一种基于曲率特征几何采样的三维数据配准方法. under 2022.03.31
3. (China Patent) 刘浩然, 潘威, 吕磊, 卢盛林. 一种基于相移轮廓术的高反射率物体三维重构方法, under 2022.02.28
4. (China Patent) Jun Liu, **Wei Pan**, Wenming Tang, Yuanhao Gong, Guoping Qiu. A kind of 3D imaging scanners and scan method. CN109141281A, 2019.01.04.
5. (China Patent) Wenming Tang, Yuanhao Gong, **Wei Pan**, Jun Liu, Guoping Qiu. A kind of mechanical arm hand and eye calibrating method and device based on Three-dimension object recognition. CN109702738A. 2019.05.03.
6. (China Patent) **Wei Pan**, Yuanhao Gong, Wenming Tang, Jun Liu, Guoping Qiu. Triangle gridding filtering method and terminal device based on Laplace operator. CN110120069A. 2019.08.13.
7. (China Patent) **Wei Pan**, Chaofan Dai, Xuequan Lu. Triangular mesh segmentation and denoising method. CN112085750A. 2020.12.15.
8. (China Patent) **Wei Pan**, Shenglin Lu, Ling Cao. High-precision point cloud normal calculation method. CN112802077A. 2021.05.14.
9. (China Patent) **Wei Pan**. Triangular mesh filtering method and device, electronic equipment and storage medium. CN113178013A. 2021.07.27.
10. (China Patent) **Wei Pan**, Jingyang Ye, Hao Chen, Jinzhao You, Shenglin Lu. High-precision three-dimensional data real-time progressive rendering method and system. CN113269860A. 2021.08.17.

Experience

Collaborative Researcher
Advisor: Prof. Takeo Igarashi

Tokyo University, Tokyo, Japan
Jan 2021 – Now

Knit-Pattern Retrieval and Classification based on data driven Pseudo-sketch Auto-generation; 3D Garment auto segmentation based on feature line generation.

Senior R&D Researcher

PI: 3D Metrology

Work independently on 3D Metrology Platform: Sci3DVision SDK; Structured-Light module development: system and software; Binocular match module: system and algorithm.

Research Fellow

Advisor: Prof. Zhang Xianmin

Working collaboratively on algorithms in 3D Metrology, including algorithms in 3D data (point cloud, range image and triangle mesh) processing and analysis, geometric measurements and computations, computer graphics etc.

Research Fellow

Advisor: Prof. QIU Guoping

3d learning-based vision algorithm: Build a 3D shape database by 3D scanning; learning algorithms on both mesh and point cloud; Pick and place process by UR robotic arm

PhD

Advisor: Prof. CHEN Lujie

Algorithm and software development for rapid prototyping and fabrication. Developed algorithms for sequencing optimization of rasterized model transformations; Rapid prototyping of ribs and slices, etc.

Research Intern

Advisor: Dr. LIU Yanjun

Tested the plasmon-induced transparency (PIT) phenomena on a gold triangle-rod hybrid nanos-structure arrays using transmission spectroscopy and FDTD simulation

Thesis Project

Advisor: Prof. KUANG Cufang

Software development in C++ for STORM microscope

Visiting Student

Advisor: Prof. Zubin Jacob

Survey on Super Resolution Fluorescence Microscopy: STED and STORM.

Research Intern

Advisor: Dr. GUO Jie

Antenna's design and simulation with COMSOL and CST using metamaterials; Kuang-Chi Young Talents Awards

Optical Design Competition

Project Leader

Fabricated a laser spying device to restore sound signals from the spots reflected from vibrated glass windows, and programmed in Labview to locate the source of sound; Awarded the only first prize

Zhejiang Xinmiao Talents Program

Advisor: Prof. LIU Chong

Tested aerosol's absorbing coefficient by laser and resonator and fix the length of resonator based on Piezoelectric ceramics with LABVIEW

China Undergraduate Innovation Program

Advisor: Dr. LIN Shisheng

Mass production of one-layer large graphene on 10-micron scale with the taping method

OPT Machine Vision Corp., Dongguan

Jun 2019 – Now

South China University of Technology, Guangzhou

Oct 2019 – Now

Shenzhen University, Shenzhen

Jun 2018 – May 2019

SUTD, Singapore

Sep. 2013 – Mar. 2018

IMRE, A*STAR, Singapore

May 2014 – Sep. 2014

Zhejiang University, Hangzhou

Jan. 2013 – July 2013

University of Alberta, Edmonton

Sep. 2012 – Dec. 2012

Kuang-Chi Institute, Shenzhen

July 2012 – Aug. 2012

Zhejiang University, Hangzhou

Feb. 2012 – July 2012

Zhejiang University, Hangzhou

Feb. 2012 – May 2013

Zhejiang University, Hangzhou

Mar. 2011 – June 2012

Awards

- President's Graduate Fellowship, Singapore, 2013-2018 (every year)
- Outstanding Graduate Student, Zhejiang University, China, 2013
- Kuang-Chi Young Talents Awards, China, 2012
- 1st Prize Winner in Optical Design Competition in Zhejiang University, China, 2012
- First-Class Scholarship for Outstanding Students, Zhejiang University, China, 2009
- Excellent Student Awards, Zhejiang University, China, 2009-2013 (every year)
- Scholarship for Excellent Students in Sports and Arts, Zhejiang University, China, 2009-2013 (every year)

Skills

Languages: Mandarin (Native), English (Fluent), Japanese (Elementary)

Programming: C++, Python, MATLAB, PyTorch, TensorFlow

Interests: Badminton, Soccer, Swimming

Activities

Teaching Assistant: System and Controls (30.101) SUTD, EPD, 2015, Lecturer: Prof. Shaohui Foong

Teaching and Lab Assistant: Digital Systems Lab (30.110) SUTD, EPD, 2014, Lecturer: Prof. Jiajia Chen, Prof. Yuen Chau

Volunteering English Teacher: Teaching English in Thang Long Middle School, Hanoi, Vietnam, June 2015

Vice Captain of Soccer Team: Initiated and co-established SUTD Diraja soccer team.