Zhiyong Su

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EDUCATION

Ph.D. in Computer Science, 2006-2009
Institute of Computing Technology, University of Chinese Academy of Sciences, Beijing, China (advisor: Prof. Weiqing Tang)

M.S. in Computer Science, 2004-2006
Nanjing University of Science and Technology, Nanjing, China

B.S. in Computer Science, 2000-2004
Nanjing University of Science and Technology, Nanjing, China

WORK EXPERIENCE

- Associate Professor, School of Automation, Nanjing University of Science and Technology, 2014 - present.
- Assistant Professor, School of Automation, Nanjing University of Science and Technology, 2011 - 2014.
- Postdoctoral Scholar, School of Automation, Nanjing University of Science and Technology, 2009 - 2011.

RESEARCH EXPERIENCE

My research interests span **computer graphics**, **augmented reality**, **computer vision**, and **machine learning**. More specifically, my current work mainly focuses on generating new algorithmic and methodological knowledge for point clouds through the use of machine learning. My research projects are centered around the following core foundations and applications:

Point Cloud, 2018 - present
- Denoising
- Quality Assessment
- Segmentation
- Recognition
- Reconstruction
- Retrieval

Machine Learning, 2018 - present
- Metric Learning
- Hash Learning
- Graph Learning
- Representation Learning
- Few-Shot Learning

Computer Graphics, VR/AR, 2004 - present
- Shadow Rendering
- Occlusion Handling
- Real-time Rendering

Computer Vision, 2018 - present
- 3D Reconstruction
- Fined-Grained Recognition

MoCap, 2019 - present
- Clustering
- Retrieval

Computer-Aided Design, 2015 - present
- Engineering CAD Model Retrieval

Model Dissemination, 2011 - 2018
- Digital Watermarking for Engineering CAD graphics
- Hash-based Content Authentication

Research on Information Security for Process plant Models in Collaborate Design, Postdoctoral Research Report, 2009 - 2011
- Role-based Real-time Information Hiding and Visualization
- Digital Watermarking for 3D Process Plant Models based on Logistic Chaotic System
- Topology Verification of Parametric Process Plant Models using Laplacian coordinates

Knowledge-Assisted Fast Rendering Techniques for Large-Scale Process Plant Models, Ph.D. Thesis, 2006 - 2009
- Fast View-Frustum Culling based on Smart Lines of Process Plant Models
- Model Knowledge-based Hardware Occlusion Culling
- Knowledge-based Fast HLOD (Hierarchical Level of Detail)
- Knowledge-Assisted Out-of-Core Rendering

GPU-based Rendering and Its Application, M.S. Thesis, 2004 - 2006
- GPU-based Ray Tracing
- GPU-based Rapid Radar Cross Section (RCS) prediction
- GPU-based Collision Detection

PUBLICATIONS

SELECTED JOURNAL PAPERS

1. **Zhiyong Su***, Ying Ye, Qi Zhang, Weiqing Li, Yuewei Dai, "Robust 2D Engineering CAD Graphics Hashing for Joint Topology and Geometry Authentication via Covariance-Based Descriptors", **IEEE Transactions on Information Forensics and Security**, vol. 13, no. 4, pp. 1018-1030, 2018

2. Rui Wen*, Weiqing Tang, **Zhiyong Su**, "Topology based 2D engineering drawing and 3D model matching for process plant", **Graphical Models**, vol. 92, pp. 1-15, 2017.

3. **Zhiyong Su***, Lang Zhou, Yaobin Mao, Yuewei Dai, Weiqing Tang, "A Unified Framework for Authenticating Topology Integrity of 2D Heterogeneous Engineering CAD Drawings", **Multimedia Tools and Applications**, vol. 76, no. 20, pp. 20663-20689, 2017.

4. Rui Wen*, Tang Weiqing, **Su Zhiyong**, "Measuring 3D process plant model similarity based on topological relationship distribution", **Computer-Aided Design and Applications**, vol. 14, no. 4, pp. 422-435, 2017.

5. **Zhiyong Su***, Xin Yang, Guangjie Liu, Weiqing Li, Weiqing Tang, "Topology Authentication for Piping Isometric Drawings", **Computer-Aided Design**, vol. 66, no. 9, pp. 33-44, 2015.

6. **Zhiyong Su**, Lang Zhou, Guangjie Liu, Jianshou Kong*, Yuewei Dai, "Authenticating topological integrity of process plant models through digital watermarking", **Multimedia Tools and Applications**, vol. 73, no. 3, pp. 1687-1707, 2014.

7. **Zhiyong Su***, Weiqing Li, Jianshou Kong, Yuewei Dai, Weiqing Tang, "Watermarking 3D CAPD models for topology verification", **Computer-Aided Design**, vol. 45, no. 7, pp. 1042-1052, 2013.

8. **Zhiyong Su***, Lang Zhou, Weiqing Li, Yuewei Dai, Weiqing Tang, "Topology authentication for CAPD models based on Laplacian coordinates", **Computers & Graphics**, vol. 37, no. 4, pp. 1269-1279, 2013.

SERVICE

- Reviewer (Journals)
  IEEE Transactions on Information Forensics and Security,
  IEEE Transaction on Multimedia,

IEEE Access,
Computer-Aided Design,
Journal of Information Security and Applications,
International Journal of Automation and Computing,
International Journal of Distributed Sensor Networks,
International Journal of Multimedia,
Journal of Computational Methods in Sciences and Engineering.