Huang Zhiyong

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Education

- o PhD of Computer Science, EPFL, Switzerland, 1997
- o MEng of Computer Engineering, Tsinghua University, China, 1988
- o BEng of Computer Engineering, Tsinghua University, China, 1986

Experiences

- o 2017-Present, Associate Professor, Department of Computer Science, School of Computing, NUS
- o 2013-2017 Senior Scientist, Robotics, I^2R
  - Senior Manager, Industry Development, I^2R
  - Strategic Planning Manager, Robotics, I^2R
- o 2007-2017 Adjunct Associate Professor, Department of Computer Science, School of Computing, NUS
- o 2007-2013 Department Head, Computer Graphics and Interface, I^2R
- o 2003-2006 Associate Faculty Member, Singapore-MIT Alliance
- o 1997-2006 Assistant Professor, Department of Computer Science, School of Computing, NUS
- o 1992-1997 Research Assistant, Computer Graphics Lab, EPFL, Switzerland
- o 1988-1992 Lecturer, Department of Computer Science and Technology, Tsinghua University, Beijing, China

Projects and research grants

1. PI, AI + Neuroscience, NUS AI Institute, May 2025-Apr 2027.
2. PI, NUS Digital Twin for Research and Services, MOE Tier-1 project, July 2022-June 2025
3. Co-PI, Capsule Endoscopy SI-Aided Diagnosis, AI SG 100E, Jan 2020- Jul 2021
4. Co-PI, Development of a Knowledge and Data-driven Satellite DEM Improvement Technique, AI SG 100E, Feb 2020- Aug 2021
5. PI, Super Resolution of Images, Smiths Detection, 2020-2021
6. PI, AI-based Automatic Classification of Crowdsourced Images, 2019-2021
7. PI, A Blockchain-based Asset Tracking and Rights Management System for Additive Manufacturing Production Workflow, NAMIC, 2018-2019
8. PI, Deep Learning for Recommender Systems, AISG, 2018-2019
9. Co-PI, Robot Application Development and Operating Environment (RODOE), SERC Industry Robotics Programme, A*STAR, September 2015-August 2017
10. Co-PI, Robot Application Development and Operating Environment, A*STAR Robotic Programme, September 2013 – August 2016
11. Co-PI, Robot Assisted Shelf Reading project, April 2014-March 2015
12. SERC Human Factor Engineering, A*STAR, August 2013- July 2014
13. PI, I^2R iModel CORE project, April 2012 – March 2014
14. Co-PI, Graphics Joint Lab, I^2R-SoC, NUS, April 2010 – July 2013
15. PI, I^2R ISGE project, P3DES, April 2007 – March 2010
16. Co-PI, A*STAR SpADE: a Spatio-temporal Autonomic Database Engine for location-based services, School of Computing, NUS, April 2005 – December 2006
17. PI, Stochastic Paintbrush Image Transformation, School of Computing, NUS, November 2000 – February 2005
18. Co-PI, Watermarking of 3D Volume Data, School of Computing, NUS, May 2001 – April 2003
19. PI, Reconstruction of 3-D Objects from Video Sequences, School of Computing, NUS, November 1998 – June 2002

Patent licensing

- o Ong EP, Nguyen HT, Niswar A, Huang Z, Rahardja S, Tng TH, 3D face modeling technology, TLA/20120228/045, ETPL, A*STAR.

Granted patents

- o Li R, Tan B H, Huang Z., Yau W Y, Mobile Manipulator And Method Of Controlling The Mobile Manipulator For Tracking A Surface, USA Patent No. 10,618,171 B2, Grant Date: 14 Apr 2020.
- o Li R, Tan B H, Huang Z., Yau W Y, High Accuracy Trajectory Tracking Method for Mobile Robot

Manipulator Systems , Primary, Singapore, 2015.

- o Ong EP, Nguyen HT, Niswar A, Huang Z, Rahardja S, A method of 3D face synthesis; and a system thereof , Primary, Singapore 2015.
- o Leow W. K., Huang Z., Zhou L., and Atmosukarto I., Frontier Advancing Polygonization. US 7,091,969, granted 15 Aug 2006.
- o Huang Z, Tan T S, Wong T W, Li X, Method and apparatus for generating atomic parts of graphic representation through skeletonization for interactive visualization applications, United States Patents, 6,825,839, granted 30 Nov 2004.

Patent application publication

- o Li R, Tan B H, Huang Z., Yau W Y, Mobile Manipulator and Method of Controlling the mobile Manipulator for Tracking a Surface, US2018/0001479 A1, Jan 4, 2018.

Selected papers

1. Chen Z., Lin H., Li K., Luo Z., Ye Z., Chen G., Huang Z., Ma J., AdamMeme: Adaptively Probe the Reasoning Capacity of Multimodal Large Language Models on Meme Harmfulness, ACL 2025 Main.

2. Cao X., Zhao Y., Tan Robby T., Huang Z., Bridging 3D Editing and Geometry-Consistent Paired Dataset Creation for 2D Nighttime-to-Daytime Translation, CVPR 2025 Workshop SyntaGen.

3. Song L., Chen X., Huang Z., Du B,, A trained Physics-Informed Neural Networks(PINNs) method for phase-field model in Allen-Cahn framework, AI4X 2025.

4. Song L., Huang Z., Chen X., Machine learning-based Optimization for Molten pool Dynamics in Laser Manufacturing, ICLR 2025 Workshop XAI4Science.

5. Li K., Tian Y., Hu Q., Luo Z., Huang Z., Ma J., MMCode: Benchmarking Multimodal Large Language Models in Code Generation with Visually Rich Programming Problems, ICLR 2025 Workshop LLM Reasoning and Plan.

6. Li K., Meng Z., Lin H., Luo Z., Tian Y., Ma J., Huang Z., Chua TS, Screen Spot-Pro: GUI Grounding for Professional High-Resolution Computer Use, ICLR 2025 Workshop LLM Reasoning and Plan.

7. Dai Y., Huang Z., Huang W., TA-MIR: Text Aggregation for Multimodal Feature Representation in Medical Image Registration, ISBI 2025.

8. Gao H., Cai S, Dinh TTA, Huang Z., Ooi BC, CtxPipe: Context-aware Data Preparation Pipeline Construction for Machine Learning , Proceedings of the ACM on Management of Data (SIGMOD) 2 (6), 1-27, 2024.

9. Ang Y., Huang Q., Bao Y., Tung A. K. H., Huang Z., TSGBench: Time Series Generation Benchmark, VLDB 2024.

10. Ang Y., Huang Q., Tung Anthony K. H., Huang Z., EADS: An Early Anomaly Detection System for Sensor-based Multivariate Time Series. Demo, ICDE 2024.

11. Zhai Y., Zeng Y., Huang Z., Qin Z., Jin X., Cao D., Multi-Prompts Learning with Cross-Model Alignment for Attribute-based Person Re-Identification, AAAI 2024.

12. Gao H., Yue C., Dinh A., Huang Z., Ooi B.C., Enabling Secure and Efficient Data Analytics Pipeline Evolution with Trusted Execution Environment. VLDB 2023.

13. Ang Y., Huang Q., Tung A. K. H., Huang Z., A Stitch in Time Saves Nine: Enabling Early Anomaly Detection with Correlation Analysis, ICDE 2023.

14. Narain A., Huang Z., Lee W. J. Jonathan, A Computer Vision Based Colonoscopy Support System for Real-Time Monitoring of Bowel Preparation and Colonic Anatomical Localization, ICBSP 2023.

15. Hao Z., Zhao S., Zheng Z., Huang Z., and Guo Y., A Compressed Sensing and Clustering Method for Robotic Localization using a Single FMCW Radar, APMC 2023.

16. Wang M., Chen J., Zhang X., Huang Z., Rahardja S., Multi-modal speech enhancement with bone-conducted speech in time domain, Applied Acoustics, Volume 200, November 2022, 109058.Li R., Huang Z., Kurniawan E., Ho C. K., AuRoSS: an Autonomous Robotic Shelf Scanning System, Regular Paper, IEEE International Conference on Intelligent Robots and Systems (IROS), 2015.

17. Tee K. P., Yan R., Chua Y.W., Huang Z., and Liemhetcharat S., Gesture-Based Attention Direction for a Telepresence Robot: Design and Experimental Study, IEEE International Conference on Intelligent Robots and Systems (IROS), 2014.

18. Gao M.C., Thanh T C., Nanjappa A., Tan S T., Huang Z.: gHull: A GPU algorithm for 3D convex hull. ACM Trans. Math. Softw. 40(1): 3 (2013).

19. Gupta R., Chia A. Y. S. Rajan D., Ng E.S., Huang Z., Image Colorization Using Similar Images, 20th ACM international conference on Multimedia, ACM Multimedia 2012, pp. 369-378.