Jianbing Huang, Ph.D.

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Objective

Looking for an opportunity where I will have more direct impact on the envisioning and the creation of a software product that I can be proud of.

Summary

A seasoned software development professional with tracking record of architecting, developing and maintaining highly performant, robust, and scalable 3D software that is widely used around the world, and a proven innovator with a rich portfolio of patents and publications.

Work Experience

2001 to 2002 Software Engineer at UGS
2002 to 2007 Software Engineer - Advanced at UGS
2007 to 2016 Software Engineer - Senior at Siemens (UGS acquired by Siemens)

Major Competencies:

- Proven experience of successfully leading software team to develop technically complex capabilities employing test driven development philosophy.
- Proven experience of mentoring junior members in the team.
- Proven experience of interacting with product management and account team to formulate software requirements.
- Ability to clearly articulate complex technical concepts to people with different levels of technical background.
- Proven experience of successfully leading research and development of complex software systems in the area of geometric computation that address key customer and/or strategic competitive needs.
- Proven experience of successfully going through the complete cycle of researching, architecting, and developing advanced software abilities delivered on multiple platforms that are used by large number of customers, as well as maintaining and improving these abilities over time.
- Proven innovator who has a track record of academic publications and patent applications.

1998 to 2001: Research Assistant and Ph.D. candidate in Department of Mechanical Engineering, The Ohio State University. Proposed and developed novel methods and algorithms in the area of 3D vision with the purpose of reconstructing a surface model from multiple view range images. Relevant dissertation work included:

- Geometric processing and interpretation of 3D images.
- Registration of images taken from multiple views and integration of them into a manifold mesh.
- Geometric feature extraction and segmentation of 3D manifold meshes.

- Fitting of B-spline surfaces to unorganized points

Education

1998 to 2001	Ph.D., Ohio State University, Columbus, Ohio
1994 to 1997	Master of Science, Tsinghua University, Beijing, P.R. China
1989 to 1994	Bachelor of Engineering, Tsinghua University, Beijing, P.R. China

Expertise

- Experience of architecting, developing, and maintaining complex software systems.
- Experience as a project lead planning and tracking complex software projects.
- Test driven development
- Experience of maintaining de-facto industry standard open visualization file format that is used by many users around the world every day.
- Extensive technical expertise in computational geometry and its practical algorithm development.
- Extensive experience with Microsoft Developer's Studio, various revision control systems, and various memory and performance analysis tools.
- Solid understanding towards object oriented design and high performance computing.
- Working knowledge of client server architecture.
- Extensive experience of designing and implementing RESTful service APIs that leverage open source technology, i.e., FlatBuffers from Google, to achieve very fast data service.
- Working knowledge of, and strong interest about, various machine learning techniques.
- Very fluent in ANSI C++ and ANSI C.
- Fluent in OpenGL.
- Some experience of Python and Matlab.

Publications

Archival journal articles:

[1] Huang,J. and Carter, B. Michael, "Interactive transparency rendering for large CAD models", *IEEE transactions on Visualization and Computer Graphics*, Vol. 11, No. 5, pp. 584-595, September/October 2005.

[2] Huang, J. and Menq, C. H., "Automatic CAD Model Reconstruction from Multiple Point Clouds for Reverse Engineering", *ASME Journal of Computing and Information Science in Engineering*, Vol. 2, No. 3, pp. 160-170, September 2002.

[3] Huang, J. and Menq, C. H., "Identification and Characterization of Regular Surfaces from Unorganized Points by Sensitivity Analysis", *ASME Journal of Computing and Information Science in Engineering*, Vol. 2, No. 2, pp. 115-124, June 2002.

[4] Huang, J. and Menq, C. H., "Combinatorial Manifold Mesh Reconstruction and Optimization from Unorganized Points with Arbitrary Topology", *Computer-Aided Design*, Vol. 34, No. 2, pp. 149-165, February 2002.

[5] Huang, J. and Menq, C. H., "Automatic Data Segmentation for Geometric Feature Extraction from Unorganized 3-D Coordinate Points", *IEEE Transactions on Robotics and Automation*, Vol. 17, No. 3, pp. 268-279, June 2001.
[6] Shen, T. S., Huang, J. and Menq, C. H., "Multiple-Sensor Planning and Information Integration for Automatic Coordinate Metrology", *ASME Journal of Computing and Information Science in Engineering*, Vol. 1, No. 2, pp. 167-179, June 2001.
[7] Shen, T. S., Huang, J. and Menq, C. H., "Multiple-Sensor Integration for Rapid and High-Precision Coordinate Metrology", *IEEE/ASME Transactions on Mechatronics*, Vol. 5, No. 2, pp. 110-121, June 2000.

Patents

[1] Huang,J. and Carter, B. M., "System and method for transparency rendering", US Patent 7583263 (https://www.google.com/patents/WO2005057502A8?cl=en&dq=System+and+method+for+transparency+rendering&hl=en&sa=X&ei=SRxOVYiLJ8yWNvbkgdAK&ved=0CB4Q6AEwAA).
[2] Huang,J. and Carter, B. M., "Method and system for B-Rep face and edge connectivity compression", US patent 8384717 (https://www.google.com/patents/US8384717?dq=Method+and+system+for+B-Rep+face+and+edge+connectivity+compression&hl=en&sa=X&ei=zhxOVdSLCIzEggSG7IHYDg&ved=0CB4Q6AEwAA).
[3] Huang,J. and Carter, B. M., et al., "Method and system for trimmed surface tessellation", US patent 8884956 (https://www.google.com/patents/EP2050079A1?cl=en&dq=Method+and+system+for+trimmed+surface+tessellation&hl=en&sa=X&ei=Oh1OVfD6GMWhNpv4gOgL&ved=0CB4Q6AEwAA).
[4] Huang,J., "Massive model visualization with spatial indexing", US patent 8725763 (https://www.google.com/patents/US8725763?dq=Massive+model+visualization+with+spatial+indexing&hl=en&sa=X&ei=5h1OVfnNLMKzggSxjYGIBw&ved=0CB4Q6AEwAA).
[5] Huang,J. and Carter, B. M., et al., "Visual file representation", US patent 8988420 (https://www.google.com/patents/US8988420).
[6] Huang,J. and Carter, B. M., et al., "Method and system for organizing topology elements for better compression", US patent 9070178 B2 (http://www.google.com.na/patents/EP2050078A2?cl=un).
[7] Huang,J. and Roetcisoender, G., et al., "Massive model visualization with spatial retrieval", US 20130132373 A1 (https://www.google.com/patents/EP2783315A1?cl=en&dq=Massive+model+visualization+with+spatial+retrieval&hl=en&sa=X&ei=2B9OVeaCAouegwSWm4CAAw&ved=0CB4Q6AEwAA).
[8] Huang, J. and Cater, B. M., et al., "Massive model visualization in PDM systems", US patent 9053254 (https://www.google.com/patents/US20130132432?dq=Massive+model+visualization+in+PDM+systems&hl=en&sa=X&ei=pyBOVbXLC4bCggS_-oDIDQ&ved=0CB0Q6AEwAA).

Patents Pending

[9] Huang, J. and Roetcisoender, G., et al., "Massive Model Visualization with a Product Lifecycle Management System", US patent application 2015P07106US.

Patents in Preparation

[10] Huang, J. and Cartar, B.M., et al., "System and method for lightweight precise 3D visual format", in preparation.

[11] Huang, J., Cartar, B.M., et al., “B-Rep based polygon mesh refinement”, in preparation.
[12] Huang, J. and Cartar, B.M., et al., “Parameter space polygon mesh compression”, in preparation.