

# KANG LI

Siemens Digital Industries Software Inc.  
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## Professional Interests

### Computer Graphics and Real-Time Rendering

Physically Based Rendering, Virtual/Augmented Reality, Visualization

### Computer-Aided Design and Manufacturing

Additive Manufacturing, Shape Optimization, Topology Optimization

### Geometric Modeling and Processing

B-Rep (Parasolid), NURBS, Polygon Mesh, Point Cloud

### Artificial Intelligence

Statistical Shape Model, Machine Learning, Computer Vision

### Numerical Methods

Finite/Boundary Element Method, Isogeometric Analysis

## Work Experience

### Siemens Digital Industries Software Inc.

2015.07~ Present

Software Engineer

Ames, IA

- Maintenance: Direct Model, JT format, Parasolid Support for Teamcenter Visualization
- Physically Based Rendering (PBR): Siemens Standard Materials (SVM) for Lightworks/TcVis/NX
- Boundary Representation (B-Rep): Ultra-Lightweight Precise (ULP) and Convergent Modeling
- WebAssembly (WASM): Unified Protocol of Client Side (UPCS) render data exchange

### Siemens Corporation, Corporate Technology

2014.06~2014.08

Intern - Geometric Modeling and Analytics

Princeton, NJ

- Optimized build orientation in 3D printing by NX Open and Parasolid for Siemens NX
- Inspected software for designing patient-specific medical implants

## Honors & Awards

### Prakash Krishnaswami CAPPD Best Paper Award

2014.08

ASME IDETC/CIE Conferences

Buffalo, NY

### Prakash Krishnaswami CAPPD Best Paper Award

2012.08

ASME IDETC/CIE Conferences

Chicago, IL

### Best Paper Award, First Place

2011.10

SIAM/ACM GD/SPM Joint Conference

Orlando, FL

### Prakash Krishnaswami CAPPD Best Paper Award

2010.08

ASME IDETC/CIE Conferences

Montreal, Canada

<b>University Graduate Fellowship</b> Syracuse University	2008.08 Syracuse, NY
<b>Excellent Student Scholarship</b> Tongji University	2002~2005.06 Shanghai, China

## Educational Background

<b>Illinois Institute of Technology</b> Ph.D. in Mechanical Engineering Thesis: <i>Direct Diffeomorphic Reparameterization for Correspondence Optimization in Statistical Shape Modeling</i> Advisor: Xiaoping Qian	2009.01~2015.05 Chicago, IL
<b>Tongji University</b> M.S. in Mechanical Engineering Thesis: <i>Structural Design and Analysis of Diaphragm Wall Grab</i>	2005.09~2008.03 Shanghai, China
<b>Tongji University</b> B.S. in Mechanical Engineering Thesis: <i>Chassis System Design of 200-ton Hydraulic Crawler Crane</i>	2001.09~2005.06 Shanghai, China

## Publications

- Direct Diffeomorphic Reparameterization for Correspondence Optimization in Statistical Shape Modeling** 2015  
*Computers-Aided Design*, vol. 64, pp. 33-54  
Kang Li and Xiaoping Qian
- Covariance Matrix of A Shape Population: A Tale on Spline Setting** 2015  
*Computers & Graphics*, vol. 47, pp. 89-104  
Kang Li and Xiaoping Qian
- Direct Geomery Processing for Tele-Fabrication** 2013  
*Computing and Information Science in Engineering*, vol. 13, pp. 041002  
Yong Chen, Kang Li and Xiaoping Qian  
Also in *ASME IDETC/CIE*, Chicago IL, 2012.08
- Isogeometric Analysis and Shape Optimization via Boundary Integral** 2011  
*Computer-Aided Design*, vol. 43-11, pp. 1427-1437  
Kang Li and Xiaoping Qian  
Also in *SIAM/ACM GD/SPM Joint Conference*, Orlando FL, 2011.10
- Topologically Enhanced Slicing of MLS Surfaces** 2011  
*Computing and Information Science in Engineering*, vol. 11-3, pp. 031003  
Kang Li and Xiaoping Qian  
Also in *ASME IDETC/CIE*, Montreal Canada, 2010.08
- Toward Patient-Specific Computational Study of Aortic Diseases: A Population Based Shape Modeling Approach** 2014.08  
*ASME IDETC/CIE*, Buffalo, NY  
Kang Li, Xiaoping Qian, Caitlin Martin and Wei Sun
- Comparison on precision of helical gear building methods in Pro/E** 2008  
*Machinery Design & Manufacture (Chinese)*  
Kang Li and Wanli Li

## Patents

- 1. Systems and Methods for Lightweight Precise 3D Visual Format** **2019.11**  
Applicant: Siemens PLM Software Inc.  
Inventors: Jianbing Huang, Michael B. Carter, Kang Li  
Publication number: 20190362029. Filed: Sept. 7, 2017. Published: Nov. 28, 2019.
- 2. Build Orientations for Additive Manufacturing** **2016.03**  
Applicant: Siemens Corporation, Corporate Technology  
Mark R. Burhop, Kang Li, Suraj Ravi Musuvathy, Edward Slavin III  
Publication number: 20160085882. Filed: Jan. 23, 2015. Published: Mar. 24, 2016.

## Skills

### Programming

<b>Languages</b>	C/C++, MATLAB, FORTRAN, Mathematica
<b>IDE</b>	Visual Studio, Xcode, Netbeans
<b>Library/API</b>	OpenGL, NX Open, Parasolid, OpenCV, FLTK
<b>Markup/Web</b>	LaTeX, HTML/CSS/Javascript

### Software

<b>Geometric Modeling/Processing</b>	NX, Pro/E, Solidworks, AutoCAD, Rhino3D, Meshlab, Mimics
<b>Numerical Simulation</b>	Abaqus, ANSYS, COMSOL, Hypermesh
<b>Reverse Engineering</b>	Geomagic, Imageware
<b>Graphics Editing</b>	Photoshop, Illustrator, Visio

### Language

<b>Proficient</b>	English, Chinese (Mandarin, Cantonese)
<b>Fundamental</b>	Japanese, French, German

## Teaching Activities

### Illinois Institute of Technology

Undergrad: MMAE445 CAD/CAM (Substitute lecturing)	Fall 2013
Graduate: MMAE545 Advanced CAD/CAM (Substitute lecturing)	Fall 2012
Graduate: Design Optimization (Grading and lab assisting)	Spring 2012

### Syracuse University

Graduate - MEE571 Computer-Aided Design (Lab guiding)	Fall 2008
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## Academic Presentations

- The 34th ASME IDETC/CIE Conference - Buffalo, NY** **2014.08**
  - Toward Patient-Specific Computational Study of Aortic Diseases: A Population Based Shape Modeling Approach  
Paper by: Kang Li, Xiaoping Qian, Caitlin Martin and Wei Sun
  - Efficient Filtering in Topology Optimization via B-splines  
Paper by: Mingming Wang and Xiaoping Qian
- The 32nd ASME IDETC/CIE Conference - Chicago IL** **2012.08**

- Direct Geomery Processing for Tele-Fabrication  
Paper by: Yong Chen, Kang Li and Xiaoping Qian

**The 2nd SIAM/ACM GD/SPM Joint Conference - Orlando FL**

**2011.10**

- Isogeometric Analysis and Shape Optimization via Boundary Integral  
Paper by: Kang Li and Xiaoping Qian

**IIT MMAE department research poster competition - Chicago IL**

**2010.08**

- Hierarchical Mesh Segmentation by Geometric/Topological Simplification of Morse Complex  
Report by: Kang Li

## Paper Reviews

ASME IDETC/CIE Conference	2014.02
Symposium on Solid and Physical Modeling	2012.05
Journal of Computer-Aided Design	2013.06
Journal of Ocean Engineering	2012.06
Journal of Measurements	2011.03