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RESEARCH INTERESTS Interactive Computer Graphics, Computer Games, Robot Motion Planning, Geometric and Physical Modeling, Haptics, Computational Geometry

CURRENT WORK **Associate Professor** 2008–Present
Dept. of Computer Science and Engineering, Ewha Womans University

EDUCATION **Ph.D., Computer Science** 1996-2000
Purdue University
Advisor: Dr. Christoph M. Hoffmann

M.S., Computer Science 1993-96
Seoul National University, Seoul, South Korea
Advisor: Dr. Yeong Gil Shin

B.S., Computer Science and Statistics 1989-92
Seoul National University, Seoul, South Korea
Graduated with honor

PUBLICATIONS Journals

(annotated with journal impact factor (IF))

1. M. Tang, M. Lee, Y. J. Kim, Interactive Hausdorff Distance Computation for General Polygonal Models, *ACM Transactions on Graphics (Proc. of SIGGRAPH)*, 28(3), Aug 2009 (accepted) (**IF 4.081**)
2. L. Zhang, Y. J. Kim, D. Manocha, Efficient Cell Labelling and Path Non-existence Computation using C-obstacle Query, *Journal of Robotics Research*, Nov/Dec 2008 (**IF 1.32**)
3. L. Zhang, Y. J. Kim, D. Manocha, Efficient Distance Computation in Configuration Space, *Computer-aided Geometric Design*, 25(7), Oct 2008 (**IF 1.38**)
4. S. Kim, S. Redon, Y. J. Kim, View-Dependent Dynamics of Articulated Bodies, *Computer Animation and Virtual Worlds*, Vol. 19(3-4), 2008 (**IF 0.547**)
5. L. Zhang, X. Huang, Y. J. Kim, D. Manocha, D-Plan: Efficient Collision-Free Path Computation for Part Removal and Disassembly, *Computer-Aided Design and Applications (CAD 2008)*, 2008 (**Best Paper by Unanimous Vote**)
6. X. Zhang, Y. J. Kim, Efficient Texture Synthesis Using Strict Wang Tiles, *Graphical Models*, 2008 (to appear)(**IF 0.702**)
7. S. Kim, S. Redon, Y. J. Kim, Continuous Collision Detection For Adaptive Simulation Of Articulated Bodies, *Visual Computer*, Vol. 24(4), 2008 (**IF 0.708**)

8. X. Zhang, S. Redon, M. Lee, Y. J. Kim, Continuous Collision Detection for Articulated Models using Taylor Models and Temporal Culling, *ACM Transactions on Graphics (Proc. of SIGGRAPH)*, Vol. 26(3), Aug 2007 **(IF 4.081)**
9. L. Zhang, Y. J. Kim, G. Varadhan, D. Manocha, Generalized Penetration Depth Computation, *Computer-Aided Design*, Vol. 39(8), Aug 2007 **(Invited Paper) (IF 1.446)**
10. X. Zhang, Y. J. Kim, Interactive Collision Detection for Deformable Models using Streaming AABBs, *IEEE Transactions on Visualization and Computer Graphics*, Vol. 13(2), Mar/Apr,2007 **(IF 1.794)**
11. Y. J. Kim, S. Redon, M. C. Lin, D. Manocha, J. Templeman, Interactive Continuous Collision Detection using Swept Volume for Avatars, *Presence: Teleoperators and Virtual Environments*, Vol. 16.2, April 2007 **(Top 25 Most Downloaded Paper) (IF 1)**
12. X. Zhang, M. Lee, Y. J. Kim, Interactive Continuous Collision Detection for Non-Convex Polyhedra, *Visual Computer (Proc. of Pacific Graphics)*, Vol 22, 2006 **(IF 0.708)**
13. Y.-J. Choi, Y.-J. Lee, J. Yoon, B.-G. Lee, Y. J. Kim, A New Class of Non-Stationary Interpolatory Subdivision Schemes based on Exponential Polynomials, *Lecture Notes in Computer Science (Proc. of Geometric Modeling and Processing)*, Vol. 4077, 2006 **(Best Poster Award)**
14. Y.-J. Choi, Y. J. Kim, M.-H. Kim, Rapid Pairwise Intersection Tests using Programmable GPUs, *Visual Computer*, 22(2), 2006 **(Invited Paper) (IF 0.708)**
15. S. Kim, X. Zhang, Y. J. Kim, Haptic Puppetry for Interactive Games, *Lecture Notes in Computer Science (Proc. of Edutainment)*, Vol. 3942, 2006
16. S. Kim, X. Zhang, Y. J. Kim, Virtual Marionette Simulation using Haptic Interfaces, *Journal of Korean Computer Graphics Society*, Vol. 11 No. 4, 2005 **(Invited Paper)**
17. S. Redon, M. Lin, D. Manocha, Y. J. Kim, Fast Continuous Collision Detection for Articulated Models, *Journal of Computing and Information Science in Engineering* Vol 5(2), June, 2005 **(IF 0.531)**
18. Y.-J. Choi, Y. J. Kim, M.-H. Kim, self-CD: Interactive Self-Collision Detection for Deformable Body Simulation Using GPUs, *Lecture Notes in Computer Science (Proc. of Asia Simulation)*, Vol. 3398, 2005
19. T.-H. Lee, Y. J. Kim, J. Chang, High Quality Volume Rendering for Large Medical Datasets using GPUs, *Lecture Notes in Computer Science (Proc. of Asia Simulation)*, Vol. 3398, 2005
20. Y. J. Kim, G. Varadhan, M. C. Lin and D. Manocha, Fast Swept Volume Approximation of Complex Polyhedral Models, *Computer-Aided Design*, Sep. 2004 **(Invited Paper) (IF 1.446)**
21. Y. J. Kim and C. M. Hoffmann, Dynamic Proximity Calculation for Situation Awareness, *Naval Research Logistics*, 51(2), March 2004 **(IF 0.362)**
22. Y. J. Kim, M. C. Lin and D. Manocha, Incremental Penetration Depth Estimation between Convex Polytopes using Dual-space Expansion, *IEEE Transactions on Visualization and Computer Graphics*, 10(2), March 2004 **(IF 1.794)**
23. Y. J. Kim and C. M. Hoffmann, Enhanced Battlefield Visualization for Situation Awareness, *Computers and Graphics*, 27(6), Dec 2003 **(Invited Paper)**
24. Y. J. Kim, M. A. Otaduy, M. C. Lin and D. Manocha, Six-degree-of-freedom Haptic Rendering using Localized Contact Computations, *Presence-Teleoperators and Virtual Environments*, 12(3), June 2003 **(IF 1)**

25. Y. J. Kim, K. Hoff, M. C. Lin and D. Manocha, Closet Point Query among the Union of Convex Polytopes using Rasterization Hardware, *Journal of Graphics Tools*, Vol 7.4, 2002

Refereed Conference Papers and Videos

1. M. Tang, Y. J. Kim, D. Manocha, C²A: Controlled Conservative Advancement for Interactive Continuous Collision Detection, *IEEE International Conference on Robotics and Automation*, 2009 (accepted)
2. M. Lee, Y. J. Kim, A Constraint-based Technique for Real-time Game Physics Engine, *Korean HCI Conference*, 2008
3. Y. Lee, Y. J. Kim, Parallel Intersection Detection Algorithm using CUDA, *Korean HCI Conference*, 2008
4. L. Zhang, Y. J. Kim, D. Manocha, A hybrid approach for complete motion planning, *IEEE International Conference on Intelligent Robots and Systems*, Oct 2007
5. L. Zhang, Y. J. Kim, D. Manocha, A Fast and Practical Algorithm for Generalized Penetration Depth, *Robotics: Science and Systems*, June 2007
6. L. Zhang, Y. J. Kim, D. Manocha, C-Dist: Efficient Distance Computation for Rigid and Articulated Models in Configuration Space, *ACM Symposium on Solid and Physical Modeling*, 2007
7. M. Lee, Y. J. Kim, S. Redon, Physically-based Objects Interaction in Augmented Reality Environments, *Korean HCI Conference*, 2007
8. S. Kim, S. Redon, Y. J. Kim, Continuous Collision Detection for Adaptive Simulations of Articulated Bodies, *Korea-Israel Bi-National Conference on Geometric Modeling and Computer Graphics*, January 29-30, 2007 (Extended Abstract)
9. J.-k. L., Y. J. Kim, Haptic Rendering of Point Set Surfaces, *World Haptics*, March 22-24, 2007
10. L. Zhang, Y. J. Kim, D. Manocha, A Simple Path Non-Existence Algorithm using C-obstacle Query, *International Workshop on the Algorithmic Foundations of Robotics (WAFR)*, 2006
11. L. Zhang, Y. J. Kim, G. Varadhan, D. Manocha, Generalized penetration depth computation, *ACM Symposium on Solid and Physical Modelling*, 2006
12. G. Varadhan, Y. J. Kim, S. Krishnan, D. Manocha, Topology Preserving Approximation of Free Configuration Space, *IEEE International Conference on Robotics and Automation*, 2006
13. L. Zhang, Y. J. Kim, G. Varadhan, D. Manocha, Fast C-obstacle Query Computation for Motion Planning, *IEEE International Conference on Robotics and Automation* 2006
14. X. Zhang, Y. J. Kim, X. Ye, Imaging Geometry, *Korea-China Joint Conference on Geometric and Visual Computing*, Aug 24-26, 2005
15. T.-Y. Ng, C. Wen, T.-S. Tan, X. Zhang, Y. J. Kim, Generating an w-Tile Set for Texture Synthesis, *Computer Graphics International*, June 22-24, 2005
16. H. R. Kwak, M.-H. Kim, Y. J. Kim, Continuous Collision Detection for Accurate Avatar Interaction in Shared Mixed Reality, *Korean HCI Conference*, 2005
17. Y.-J. Choi, Y. J. Kim, M.-H. Kim, Interactive Self-Collision Detection Using GPUs, *Israel/Korea Binational Conference on Geometric Modeling and Graphics*, 2004
18. S. Redon, Y. J. Kim, M. C. Lin and D. Manocha, Fast Continuous Collision Detection for Articulated Models, *ACM Symposium on Solid Modeling and Applications*, 2004 (**Best Paper Award**)

19. S. Redon, Y. J. Kim, M. C. Lin and D. Manocha, Interactive and Continuous Collision Detection for Avatars in Virtual Environments, *IEEE Virtual Reality*, 2004
20. G. Varadhan, S. Krishnan, Y. J. Kim, S. Diggavi and D. Manocha, Efficient Max Norm Distance Computation and Reliable Voxelization, *Symposium on Geometry Processing*, June 2003
21. G. Varadhan, S. Krishnan, Y. J. Kim and D. Manocha, Feature-Sensitive Subdivision and Isosurface Reconstruction, *IEEE Visualization*, Oct 2003
22. Y. J. Kim, M. Otaduy, M. C. Lin and D. Manocha, Fast Penetration Depth Estimation Using Rasterization Hardware And Hierarchical Refinement, *Symposium on Computational Geometry Video Review*, 2003
23. Y. J. Kim, G. Varadhan, M. C. Lin and D. Manocha, Efficient Swept Volume Approximation Of Complex Polyhedral Models Using Distance Fields, *ACM Conference on Solid Modeling*, 2003
24. Y. J. Kim, M. C. Lin and D. Manocha, Fast Penetration Depth Computation Using Hierarchical Refinement, *International Workshop on Foundations of Robotics*, 2002
25. Y. J. Kim, M. A. Otaduy, M. C. Lin and D. Manocha, Fast Penetration Depth Computation For Physically-Based Animation, *ACM Symposium on Computer Animation*, 2002
26. Y. J. Kim, M. A. Otaduy, M. C. Lin and D. Manocha, Six-Degree-Of-Freedom Haptic Rendering Using Localized Contact Computations, *IEEE conference on Virtual Reality and Haptic Symposium*, 2002
27. Y. J. Kim, M. C. Lin and D. Manocha, DEEP:Dual-Space Expansion For Estimating The Penetration Depth Between Convex Polytopes, *IEEE International Conference on Robotics and Automation*, 2002
28. J. D. Walrath, R. P. Winkler and P. J. Emmerman, C. M. Hoffmann, Y. J. Kim, Visualization Technique For Improved Situation Awareness, *SPIE conference on human vision and imaging*, 2000
29. C. M. Hoffmann, Y. J. Kim, R. P. Winkler, J. D. Walrath and P. J. Emmerman, Visualization For Situation Awareness, *New Paradigm on Information Visualization and Manipulation '98*, 1998 (**Best Presentation Award**)

Misc. Papers

1. H.-J. Min, M. Lee, Y. J. Kim, Global Visibility Culling for Large Model Rendering, *Korean Computer Graphics Society*, 2006
2. X. Zhang, Y. J. Kim, Interactive Collision Detection for Deformable Models using Streaming AABBs, *Korean Computer Graphics Society*, July 2006 (Extended Abstract)
3. Y. J. Kim, L. Zhang, M. C. Lin, D. Manocha, Fast Penetration Depth Computation and Its Applications, *Nicograph* 2006 (**Invited Paper**)
4. Y. J. Kim, S. Redon, M. C. Lin, D. Manocha, Continuous Collision Detection for Articulated Models in Virtual Environments, *Japan/Korea Digital Engineering Workshop*, Feb 24-25, 2005 (**Invited Paper**)
5. D. H. Kim, M.-J. Kim, Y. J. Kim, A Pen-based Sketching Environment for Shape Modeling, *Korea Computer Graphics Society*, 2004
6. Y. J. Kim, M. A. Otaduy, M. C. Lin and D. Manocha, Fast Penetration Depth Computation using Rasterization Hardware and Hierarchical Refinement, *UNC-CH Technical Report TR02-014*, 2002

7. Y. J. Kim, M. A. Otaduy, M. C. Lin and D. Manocha, Six-degree-of-freedom Haptic Interaction Using Incremental And Localized Computations (Extended Abstract), *Workshop on Intelligent Human Augmentation and Virtual Environments (WIHAVE)*, UNC-Chapel Hill, Oct 2002

Book Chapters

1. L. Zhang, Y. J. Kim and D. Manocha, A Simple Path Non-existence Algorithm Using C-Obstacle Query , *Algorithmic Foundations of Robotics VII*, Springer Berlin, Vol. 47, 2008
2. Y. J. Kim, M. C. Lin and D. Manocha, Fast Penetration Depth Computation using Hierarchical Refinement, *Advanced robotics series*, Springer Verlag, Dec 2002

Theses

1. Y. J. Kim, Visualization and Animation for Situation Awareness in the Battlefield, Ph.D. Thesis, Purdue University, 2000
2. Y. J. Kim, Study on 3D Game Development, M.S. Thesis, Seoul National University, 1996

RESEARCH EXPERIENCE	Associate Professor 2008-Present Dept. of Computer Science and Engineering, Ewha Womans University Head of Computer Graphics Lab at Ewha (http://graphics.ewha.ac.kr)
	Assistant Professor 2003-2008 Dept. of Computer Science and Engineering, Ewha Womans University
	Post Doctoral Research Associate 2001-2003 GAMMA group, Computer Science Dept., University of North Carolina at Chapel Hill Supervised under Prof. Dinesh Manocha and Prof. Ming C. Lin.
	Research Assistant 1997-2000 Geometric Modeling and Scientific Visualization Lab, Purdue University Supervised under Prof. Christoph M. Hoffmann.
	Research Assistant 1993-96 Graphics Lab, Seoul National University Supervised under Prof. Yeong Gil Shin.
CLASSES TAUGHT	Computer Graphics Fall 2004-2009 <i>Taught in English</i>
	Engineering Mathematics Spring 2005-2006, Fall 2008 <i>Taught in English</i>
	Applied Mathematics Spring 2007 <i>Taught in English</i>
	Theory of Programming Languages Spring 2004
	Automata and Formal Language Fall 2003

	Applications of Computer Science and Engineering	2004–2006
	Advanced 3D Game Animation <i>Taught in English</i>	Fall 2003–2008
	Interactive Computer Graphics <i>Taught in English</i>	Spring 2003–2008
AWARDS	Outstanding Research Cases Award, KOREA RESEARCH FOUNDATION	2008
	Third Best Paper Award, ANNUAL KOREAN COMPUTER GRAPHICS SOCIETY CONFERENCE	2008
	Best Paper Award by Unanimous Vote IN INTERNATIONAL CAD CONFERENCE AND EXHIBITION	2008
	Best Research Faculty Award, EWHA WOMANS UNIVERSITY	2008
	Best Poster Award IN GEOMETRIC MODELING AND PROCESSING	2006
	Young Investigator Research, KOREA SCIENCE AND ENGINEERING FOUNDATION	2004
	Best Paper Award IN ACM SYMPOSIUM ON SOLID MODELING AND APPLICATIONS	2003
	Best Presentation IN NEW PARADIGM ON INFORMATION VISUALIZATION AND MANIPULATION	1998
	Graduated with Honor, SEOUL NATIONAL UNIVERSITY	1992
	Undergraduate Fellowship, SEOUL NATIONAL UNIVERSITY	1989–1992
ADVISED POSTDOCS	Xinyu Zhang, Ph.D. Fulltime Lecturer at Ewha Womans University	2005–2007
	Jae-Kyu Lee, Ph.D. Research Professor at Sunkyunkwan University	2006
ADVISED STUDENTS	Yeony Lee, M.S. Samsung corporation	2007–2009

Minkyong Lee, M.S. 2006–2008
Ph.D. candidate at Ewha womans university

Sujeong Kim, M.S. 2005–2007
SK C&C corporation

Heajung Min, M.S. 2006–2008
LG corporation

SERVICES

Program Chair

Korea/Israel Bi-national Conference on Geometric Modeling and Computer Graphics (07)
EuroHaptics Tutorial (06)

Program Committee

Korea/Israel Bi-national Conference on Geometric Modeling and Computer Graphics (04,07)
China/Korea Joint Conference on Geometric and Visual Computing (05-07)
CAD/Graphics (07-09)
Pacific Graphics (05, 07-09)
IEEE Virtual Reality (07-09)
Computer Animation and Social Agents (05,08)
Symposium on Computer Animation (08)
ACM Solid and Physical Modeling (07-09)
International Conference on Computer Graphics Theory and Applications (07-09)
Geometric Modeling and Processing (06,08)
EuroHaptics (06)

**RESEARCH
GRANT**

R&D in IT Core-Technology 2008–2012
Development of Real-time Physics Simulation Engine for e-Entertainment, *Ministry of Knowledge Economy*, 5.4B Won (approx. 5.5M USD)

Junior Faculty Research 2007–2009
Accurate Implicit Modeling for Massive Geometric Models, *Korea Research Foundation*, 44M Won (approx. 44K USD)

Young Investigator Award 2004–2007
A Study on Robust 6DOF Haptic Rendering Algorithms and their Applications to Sketch-based Modeling, *Korea Science and Engineering Foundation*, 140M Won (approx. 140K USD)

IT Research Center 2004–2007
Mixed Reality for Digital Life, *Korea Research Foundation*, 150M Won (approx. 140K USD)

France-Korea STAR Research Program 2006–2007
Adaptive Simulation of Articulated Bodies with Force-Feedback, *Korea Science and Engineering Foundation*, 42M Won (approx. 42K USD)

Korea SMBA Research Grant

2006–2007

Customer Recognition System based on Facial Recognition Technology, *Korea Small and Medium Business Administration*, 41M Won (approx. 41K USD)

REFERENCES

Christoph M. Hoffmann

Professor

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