CURRICULUM VITÆ

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RESEARCH INTERESTS:

Robotics, computer graphics and animation, motion planning, computational geometry, physically-based modeling, virtual prototyping, scientific visualization, haptics.

EDUCATION:

1989 - 1999	**Stanford University**, Stanford, CA. Ph.D., Computer Science. Conferred January 2000. *Dissertation Topic:* Motion Planning for Computer Animation *Advisor:* Prof. Jean-Claude Latombe. M.S., Computer Science *(Systems specialization)*. Conferred January 1995. B.S. *(with distinction)*, Computer Science. Conferred June 1993. GPA: 4.0+
Spring 1992	**Oxford University**, Magdalen College, Oxford, England.

RESEARCH EXPERIENCE:

2008 - present	**Associate Professor**, *The Robotics Institute, Carnegie Mellon University.*
2005 - 2008	**Assistant Professor**, *The Robotics Institute, Carnegie Mellon University.*
2002 - 2005	**Research Scientist**, *The Robotics Institute, Carnegie Mellon University. School. of Computer Science. Pittsburgh, PA*. Developing algorithms and techniques for motion control of humanoid robots and computer-animated human figures.
2001 - present	**AIST Research Fellow**, *Digital Human Lab, National Institute of Advanced Industrial Science & Technology (AIST)., Tokyo, Japan.* Designing efficient models for human simulation and motion generation.
1999 - 2001	**Postdoctoral Research Fellow**, *The University of Tokyo, Dept. of Mechano-Informatics, Inoue-Inaba Robotics Lab. Tokyo, Japan.* Designed and implemented large-scale simulation and graphic visualization software to facilitate task-based control for humanoid robots.
1993 - 1999	**Graduate Research Assistant**, *Stanford University, Dept. of Computer Science, Robotics Laboratory. Stanford, CA*. Contributed to a variety of research projects in computer graphics, robotics, haptics, computer vision, and physically-based modeling. Dissertation research combined robot motion planning with computer graphics to synthesize motion for articulated animated characters from task-level commands.

Summer 1995	**Visiting Researcher**, *Tokyo Institute of Technology, Dept. of Mechano-Aerospace Eng., Hirose-Yoneda Robotics Lab, Tokyo, Japan.* Developed software for quadruped walking robots.
1992 - 1993	**Research Assistant**, *Stanford University, Dept. of Physics. Stanford, CA.* Designed and implemented hardware and software for high-energy atomic physics experiments at the Stanford Linear Accelerator Center (SLAC).

TEACHING EXPERIENCE:

Spring 2008	**Instructor**, *CS 16-899A: Topics in Motion Planning, Carnegie Mellon University, The Robotics Institute.* Designed and organized a new robotics course covering advanced topics in sampling-based motion planning and high-dimensional search.
Spring 2008 & Spring 2007 & Spring 2004 & Fall 2002	**Instructor**, *CS 15-466: Computer Game Programming, Carnegie Mellon University, Dept. of Computer Science.* Served as primary lecturer and organizer for a new graphics course covering programming 3D interactive games and virtual reality simulations.
Fall 2006	**Instructor**, *CS 15-462: Computer Graphics I, Carnegie Mellon University, Dept. of Computer Science.* Served as primary lecturer and organizer for an introductory level computer graphics course.
Summer 2006 & Summer 2005	**Instructor**, *"Advanced Graphics: Procedural Modeling Techniques" and "Computer Game Programming", AIIT, Seoul, Korea.* Invited as primary lecturer and organizer for two intensive graphics course designed for university faculty across S. Korea.
Spring 1997	**Instructor**, *CS326B: Computational Methods in Computer Animation, Stanford University, Dept. of Computer Science.* Lecturer and organizer for a graduate-level course covering advanced topics in algorithmic computer animation.
Spring 1996	**Teaching Assistant**, *CS326B: Computational Methods in Computer Animation. Stanford University, Dept. of Computer Science.*
Spring 1994	**Teaching Assistant**, *CS105A: Introductory Computer Science. Stanford University, Dept. of Computer Science.*

OTHER TEACHING ACTIVITIES:

Spring 2009	**Invited Instructor**, *JSME Academic Boot Camp* Lectured at national symposium on how to conduct scientific research for students of Japanese universities.
Fall 2008	**Instructor**, *ETC-Japan F08 Elective Carnegie Mellon University, Entertainment Technology Center* Organized lectures and supervised individual student projects for ETC Japan.
2000 - 2002	**Invited Lecturer**, *The University of Tokyo, Dept. of Mechano-Informatics, Tokyo, Japan.* Served as a guest instructor for a several graduate-level courses in robotics.

Winter 1999	**Co-Coordinator**, *CS448: Readings in Computer Animation, Stanford University, Dept. of Computer Science.* Jointly gave lectures and organized a graduate-level computer animation seminar.
1994 - 1998	**Organizer**, *ACM Local Programming Competition, Stanford University.* Team coach, advisor, and organizer of annual local ACM International Programming Competition.
1993 - 1995	**Advising Associate**, *Stanford University, Dept. of Computer Science.* Mentored undergraduate students majoring in Computer Science, advising on coursework.

INDUSTRY EXPERIENCE:

2007 - present	**Founder and Director**, *Robot Autonomy, LLC, Pittsburgh, PA.* Coordinated research and software consulting for industrial and consumer robotics applications.
2002 - 2006	**Software Consultant**, *Teraport Gmbh, Stuttgart, Germany.* Developed path planning tools for virtual prototyping applications, including part removability and maintenance analysis for complex industrial CAD models.
1995 - 1998	**Senior Software Engineer, Software Consultant**, *The Motion Factory, Inc. Fremont, CA.* As a co-founding member of the development team, contributed to a major software engineering effort in C++ to create authoring tools for high-level graphic animation and interactive multimedia content.
1991	**Software Design Engineer Intern**, *Microsoft Corp., Applications Business Unit, Development. Redmond, WA.* Worked as a member of the Microsoft Excel 4.0 development team (programming both Windows and MacOS).
1990 - 1991	**Database Administrator**, *ASIC Technology & News, circulation division. Mountain View, CA.* Managed a database of over 40,000 subscription records. Authored custom utilities for automated queries and analysis in SQL.

HONORS AND AWARDS:

- Okawa Foundation Award for Young Researchers, *"Improving Robot Autonomy with Automatic Motion Planning"* , 2007.
- Allen Newell Award for Excellence in Undergraduate Research (Supervisor), *Jared Go, CS, Carnegie Mellon University*, Undergraduate thesis: "Real-time Texture-Space Radiosity", 2005.
- Computing Research Association Outstanding Undergraduate Award (Supervisor), *Jared Go, CS, Carnegie Mellon University*, Finalist (Male Award), 2004.
- Outstanding presentation award, *JSME Conf. on Robotics and Mechatronics (ROBOMEC'02)*, "Humanoid Arm Motion Planning" 2002.
- Finalist, Best paper award, *IEEE Int'l Conf. on Robotics and Automation*, "Motion Planning for Humanoid Robots Under Obstacle and Dynamic Balance Constraints," 2001.
- Best paper, *RSJ/JSME Robotics Symposia (Japan)*, "A Network Control Interface for Humanoid-type Robots," 2001.

- Third place, Best paper, *IEEE/RSJ Int'l Conf. on Humanoid Robotics*, "Dynamically-stable Motion Planning for Humanoid Robots," 2000.
- Outstanding presentation award, *JSME Conf. on Robotics and Mechatronics (ROBOMEC'00)*, "Automating object manipulation tasks for humanoid robots," 2000.
- Japan Society for the Promotion of Science (JSPS) Postdoctoral Research Fellow, 1999-2001.
- National Science Foundation Graduate Fellowship in Computer Science, 1994-1999.
- NSF Summer Institute for Graduate Research in Japan *Tokyo Institute of Technology*, 1995.
- F. E. Terman Award for Outstanding Academic Achievement in Engineering, Stanford University, 1993.
- Winner of Cray Research, Inc. Computer Science Undergraduate Fellowship, 1993.
- Tau Beta Pi, National Engineering Honor Society, 1992.
- Meritorious Entry, National Mathematics Modeling Contest, 1992.
- Frederick B. Hunie Engineering Scholarship (Stanford University), 1991.
- First Place, All-State in Geometry, Oregon Mathematics Invitational Tournament, 1988.

PROFESSIONAL ACTIVITIES:

Technical Meeting Involvement:

- Associate Editor, Conference Editorial Board, IEEE Robotics and Automation Society, 2006 - 2009
- Program Committee, Robotics: Science and Systems, Seattle, 2009
- Program Committee, IEEE Int. Conf. on Humanoid Robotics (Humanoids08), Daejeon, Korea, 2008
- Program Committee, Robotics: Science and Systems, Zurich, 2008
- Conference General Chair, IEEE Int. Conf. on Humanoid Robotics (Humanoids07), Pittsburgh, 2007
- Program Committee and Session Chair, Int. Conf. Intelligent Robots and Systems (IROS07), San Diego, 2007
- Program Committee, ACM/Eurographics Symp. on Computer Animation (SCA06), San Diego, 2007
- Program Committee, Robotics: Science and Systems, Atlanta, 2007
- Program Committee, ACM/Eurographics Symp. on Computer Animation (SCA06), Vienna, Austria, 2006
- Program Committee, Workshop on the Algorithmic Foundations of Robotics (WAFR06), New York, 2006
- Panelist, ICRA 2006, Humanoid Robotics Workshop, Orlando, 2006
- Session Chair, IEEE Int. Conf. Robotics and Automation (ICRA06), Orlando, 2006
- Program Committee, ACM/Eurographics Symp. on Computer Animation (SCA05), Los Angeles, 2005
- Program Committee, IEEE Int. Conf. on Humanoid Robotics (Humanoids05), Tsukuba, Japan, 2005
- Program Committee, Robotics: Science and Systems, Boston, 2005
- Session Chair, IEEE Int. Conf. Robotics and Automation (ICRA05), Barcelona, Spain, 2005
- Program Committee and Session Chair, Int. Conf. Intelligent Robots and Systems (IROS04), Sendai, Japan, 2004

- Program Committee, IEEE Int. Conf. on Humanoid Robotics (Humanoids04), Santa Monica, 2004
- Program Committee and Session Chair, ACM/Eurographics Symp. on Computer Animation (SCA04), Grenoble, France, 2004
- Session Chair, Int. Conf. Intelligent Robots and Systems (IROS03), Las Vegas, 2003
- Session Chair, IEEE Int. Conf. on Humanoid Robotics (Humanoids03), Karlsruhe, Germany, 2003
- Program Committee and Session Chair, ACM Symp. on Computer Animation (SCA03), San Diego, 2003
- Session Chair, IEEE Int. Conf. Robotics and Automation (ICRA03), Taipei, Taiwan, 2003
- Program Committee and Session Chair, ACM Symp. on Computer Animation (SCA02), San Antonio, 2002
- Panelist, Digital Human Modeling Workshop, Tokyo, 2002
- Panelist, IROS 2001, Humanoid Robotics Workshop, Maui, 2001
- Co-organizer, Advanced Science Institute (ASI), Tokyo, 2001

Invited Academic Lectures and Industrial Visits:

- Willow Garage, Menlo Park, CA, 2009
- Kawada Industries, Inc., Utsunomiya, Japan, 2009
- School of Engineering, The University of Tokyo, Japan, 2009
- Computer Science Dept., Univ. of Karlsruhe, Germany, 2009
- Inst. of Robotics and Mechatronics, German Aerospace Center (DLR), Wessling, Germany, 2009
- Inst. of Automatic Control Engineering (LSR), Technical University of Munich, Germany, 2009
- Max Planck Institute for Biological Cybernetics, Tuebingen, Germany, 2009
- Italian Institute of Technology, Genova, Italy, 2009
- National Institute of Technology, Karnataka, Surathkal, India, 2008
- India Institute of Technolog (IIT) Madras, Chennai, India, 2008
- School of Computer Science, National University of Singapore, 2008
- Workshop on Humanoid Robotics, LAAS-CNRS, Toulouse, France, 2008
- Intel Research Forum, Distinguished Lecture, Pittsburgh, 2007
- The Onassis Foundation Lectures in Computer Science, Heraklion, Greece, 2006
- Dept. of Computer Science, The University of Illinois, 2006
- Dept. of Computer Science, University of Massachusetts (Amherst), 2006
- MIT Media Lab, The Massachusetts Institute of Technology, Boston, MA, 2006
- Dept. of Computer Science, City University of Hong Kong, 2005
- Dept. of Computer Science, University of North Carolina, Chapel Hill, NC, 2005
- Dept. of Computer Science, Stanford University, Stanford, CA, 2005
- Dept. of Information and Computing Sciences, Utrecht University, Netherlands, 2005
- Digital Human Modeling Workshop, AIST, Tokyo, Japan, 2005
- Int'l Workshop on Motion Planning in Virtual Environments, LAAS-CNRS, Toulouse, France, 2005.
- First Int'l Winter School in Humanoid Robotics, KAIST, Daejeon, Korea, 2005
- Computer Science Dept., Washington University, St. Loius, 2004.
- LAAS-CNRS, Toulouse, France, 2004.
- Korea Institute for Science and Technology (KIST), Seoul, Korea, 2004.
- KAIST Symposium on Ubiquitous Computing, KAIST, Daejeon, Korea, 2004.

- SAIM Workshop on Dynamic Algorithms, New Orleans, 2004.
- Dept. of Computer Science, Columbia University, New York, 2003.
- Conf. on Intelligent Robotics and Automation (CIRA), Kobe, Japan, 2003.
- Workshop on the Mathematics of Computer Animation, The Fields Institute, Univ. of Toronto, Toronto, Canada, 2002
- 5th Int'l Congress of Electronics (CIE), Guadalajara, Mexico, 2002
- Robotics Institute, Dept. of Computer Science, Carnegie Mellon University, 2002
- Dept. of Computer Science, The University of Illinois, 2002
- Nat'l Institute of Adv. Industrial Science & Technology (AIST), Tokyo, 2002
- China Museum of Science and Technology, Beijing, PRC, 2001
- Advanced Science Institute (ASI), Humanoid Robotics Panel, Tokyo, 2001
- Robotics Institute, Dept. of Computer Science, Carnegie Mellon University, 2001
- Dept. of Computer Science, Oregon Graduate Institute, 2001
- Dept. of Mechano-Informatics, The University of Tokyo, 2000
- Computer Science Dept. Colloquium Series, Iowa State University, 1999
- Dept. of Computer Science, Stanford University, 1999
- SIMA Workshop on Motion Support for Virtual Prototyping, Stanford University, 1999
- Stanford Computer Forum Annual Meeting, Stanford University, 1999

Educational Activities:

- Invited Lecturer, "Explaining Scientific Research", JSME Academic Boot Camp, Tokyo, 2008.
- Lecturer, "Motion Planning and Autonomy for Virtual Humans", SIGGRAPH Course Notes, 2008.
- Editor, "Humanoid Motion Planning", Co-Editor, "Motion Planning" articles in online encyclopedia.
- Panelist, "Computer Games in CS Education: How and Why", SIGCSE Technical Symp. on Computer Science Education, 2005.
- Volunteer, IEEE Sweep Computer Science Curriculum Standard, 2001.

Memberships:

- IEEE, ACM, RSJ (Robotics Society of Japan)
- Scientific Advisory Board Member, Robotics/AI Group, Lifeboat Foundation, 2007-present.
- Member, IEEE-RAS Technical Committee for Humanoid Robotics, 2006.
- Member, IEEE-RAS Technical Committee for Planning and Control of Robot Motion, 2006.

Reviewer:

- *IEEE Trans. on Robotics and Automation*
- *Int'l Journal of Robotics Research*
- *Computational Geometry: Theory and Applications*
- *Autonomous Robots*
- *IEEE Trans. on Visualization and Computer Graphics*
- *Journal of Guidance, Control, and Dynamics*
- *ACM Trans. on Graphics*
- *Virtual Reality*
- *Int'l Journal of Humanoid Robotics*

- *Journal of Field Robotics*
- *IEEE Robotics and Automation Society Magazine*
- *IEEE Trans. on Intelligent Transportation Systems*
- IEEE Computer Graphics and Applications
- ACM SIGGRAPH Annual Conference
- IEEE Int'l Conference on Robotics and Automation
- CGS/IEEE Int'l Conference on Computer Animation
- Workshop on the Algorithmic Foundations of Robotics
- IEEE Int'l Conference on Decision and Control
- Robotics: Science and Systems
- IEEE Int'l Intelligent Robots and Systems
- ACM Symposium on Computer Animation
- IEEE/RSJ Int'l Conference on Humanoid Robotics

PUBLICATIONS:

Books and Book Chapters

[1] O. Brock, J.J. Kuffner, and J. Xiao. *Motion for Manipulation Tasks*, volume 4 of *Handbook of Robotics*, chapter 26. Springer-Verlag, 2008. ISBN: 978-3-540-23957-4.

[2] J.J. Kuffner, K. Nishiwaki, S. Kagami, M. Inaba, and H. Inoue. Motion planning for humanoid robots. In *Robotics Research: The Eleventh International Symposium*, volume 15 of *Springer Tracts in Advanced Robotics*, page 365. Springer-Verlag, Aug 2005. ISBN: 3-540-23214-1.

[3] S. Kagami, K. Nishiwaki, J.J. Kuffner, K. Okada, Y. Kuniyosh, M. Inaba, and H. Inoue. *Low-level Autonomy of the Humanoid Robots H6 & H7*. Springer-Verlag, 2003.

[4] S. Kagami, K. Nishiwaki, J.J. Kuffner, T. Sugihara, M. Inaba, and H. Inoue. *Design and Implementation of the Humanoid H6 for Remote Operation*. Springer-Verlag, 2001.

[5] S.M. LaValle and J.J Kuffner. Rapidly-exploring random trees: Progress and prospects. In *Robotics: The Algorithmic Perspective.* 4th Int'l Workshop on the Algorithmic Foundations of Robotics., A. K. Peters. Natick, MA, 2000.

[6] J.J. Kuffner. *Autonomous Agents for Real-time Animation*. PhD thesis, Stanford University, Stanford, CA, December 1999.

Refereed Journal Articles

[7] P. Michel, J. Chestnutt, S. Kagami, K. Nishiwaki, J. Kuffner, and T. Kanade. Motion planning using future perceptive capability. *Int. J. Humanoid Robotics*, 2009. *In Press*.

[8] M. Lau, J.J. Kuffner, and Z. Bar-Joseph. Modeling spatial and temporal variants in motion data. *ACM Trans. on Graphics (Proc. SIGGRAPH ASIA 2009)*, 28(5), 2009.

[9] M. Stilman and J.J. Kuffner. Planning among movable obstacles with artificial constraints. *Int. J. Robotics Research*, 27(12):1295–1307, November 2008.

[10] M. Stilman, K. Nishiwaki, S. Kagami, and J.J. Kuffner. Planning and executing navigation among movable obstacles. *Advanced Robotics*, 2007.

[11] K. Nishiwaki, J.J. Kuffner, S. Kagami, M. Inaba, and H. Inoue. The experimental humanoid robot H7 : A research platform for autonomous behavior. *Phil. Trans. of the Royal Society A (special issue "Walking Machines")*, 365(1850):79–107, January 2007.

[12] M. Stilman and J.J. Kuffner. Navigation among movable obstacles : Real-time reasoning in complex environments. *International Journal of Humanoid Robotics*, 2(4):1–24, 2005.

[13] J. Go, T. Vu, and J.J. Kuffner. Autonomous behaviors for interactive vehicle animations. *International Journal of Graphical Models*, 2005.

[14] K. Yamane, J.J. Kuffner, and J.K. Hodgins. Synthesizing animations of human manipulation tasks. *ACM Trans. on Graphics (Proc. SIGGRAPH 2004)*, 23(3):532–539, 2004.

[15] S. Kagami, J.J. Kuffner, K. Nishiwaki, M. Inaba, and H. Inoue. Humanoid arm motion planning using stereo vision and RRT search. *J. Robotics and Mechatronics*, 15(2):200–207, April 2003.

[16] J.J. Kuffner, S. Kagami, K. Nishiwaki, M. Inaba, and H. Inoue. Dynamically-stable motion planning for humanoid robots. *Autonomous Robots (special issue on Humanoid Robotics)*, 12:105–118, 2002.

[17] S.M. LaValle and J.J. Kuffner. Randomized kinodynamic planning. *International Journal of Robotics Research*, 20(5):378–400, May 2001.

[18] H. Akatsu and J.J. Kuffner. Medicine and the internet. *The Western Journal of Medicine*, 169(5):311–317, November 1998.

[19] W.E. Meyerhof, D.W. Spooner, J.J. Kuffner, E.C. Montenegro, K. Ishii, S.E. Kuhn, D.M. Kawall, D.G. Jensen, and Z.-E. Meziani. A measurement of the density effect during relativistic K-shell ionization. *Atoms, Molecules, and Clusters : Der Zeitschrift fur Physik D.*, June 1994.

Refereed International Conference Papers

[20] D. Berenson, S. Srinivasa, and J.J. Kuffner. Addressing pose uncertainty in manipulation planning using task space regions. In *IEEE Int. Conf. on Intell. Robots and Systems (IROS'09)*, 2009.

[21] J. Chestnutt, Y. Takaoka, K. Suga, K. Nishiwaki, J.J. Kuffner, and S. Kagami. Biped navigation in rough environments using on-board sensing. In *IEEE Int. Conf. on Intell. Robots and Systems (IROS'09)*, 2009.

[22] J. Chestnutt, K. Nishiwaki, J.J. Kuffner, and S. Kagami. Interactive control of humanoid navigation. In *IEEE Int. Conf. on Intell. Robots and Systems (IROS'09)*, 2009.

[23] N. Vahrenkamp, D. Berenson, T. Asfour, R. Dillmann, and J.J. Kuffner. Humanoid motion planning for dual-arm manipulation and re-grasping tasks. In *IEEE Int. Conf. on Intell. Robots and Systems (IROS'09)*, 2009.

[24] D. Berenson, S.S. Srinivasa, D. Ferguson, and J.J. Kuffner. Manipulator path planning on constraint manifolds. In *IEEE Int. Conf. on Robotics and Automation (ICRA'09)*, 2009.

[25] D. Berenson, S.S. Srinivasa, D. Ferguson, A. Collet, and J.J. Kuffner. Manipulator path planning with workspace goal regions. In *IEEE Int. Conf. on Robotics and Automation (ICRA'09)*, 2009.

[26] J. van den Berg, M. Stilman, J.J. Kuffner, M. Lin, and D. Manocha. Path planning among movable obstacles: a probabilistically complete approach. In *Workshop on the Algorithmic Foundations of Robotics (WAFR'08)*, 2008.

[27] R. Diankov, S.S. Srinivasa, D. Ferguson, and J.J. Kuffner. Manipulation planning with caging grasps. In *IEEE Int. Conf. on Humanoid Robots (Humanoids'08)*, 2008.

[28] N. Vahrenkamp, C. Scheurer, T. Asfour, J.J. Kuffner, and R. Dillmann. Multiresolutional motion planning for humanoid robots. In *IEEE Int. Conf. on Intell. Robots and Systems (IROS'08)*, 2008.

[29] R. Diankov, N. Ratliff, D. Ferguson, S. Srinivasa, and J.J. Kuffner. Bispace planning: Concurrent multi-space exploration. In *Robotics: Science and Systems*, 2008.

[30] N. Chan, J.J. Kuffner, and M. Zucker. Improved motion planning speed and safety using regions of inevitable collision. In *17th CISM-IFToMM Symposium on Robot Design, Dynamics, and Control (RoManSy'08)*, 2008.

[31] D. Berenson, J.J. Kuffner, and H. Choset. An optimization approach to planning for mobile manipulation. In *IEEE Int. Conf. on Robotics and Automation (ICRA'08)*, 2008.

[32] M. Zucker, J.J. Kuffner, and J. Andrew Bagnell. Adaptive workspace biasing for sampling-based planners. In *IEEE Int. Conf. on Robotics and Automation (ICRA'08)*, 2008.

[33] Michael S. Branicky, Ross A. Knepper, and James J. Kuffner. Path and trajectory diversity: Theory and algorithms. In *IEEE Int. Conf. on Robotics and Automation (ICRA'08)*, 2008.

[34] D. Berenson, R. Diankov, K. Nishiwaki, S. Kagami, and J.J. Kuffner. Grasp planning in complex scenes. In *IEEE/RAS Int. Conf. on Humanoid Robotics (Humanoids'07)*, 2007.

[35] J. Chestnutt, K. Nishiwaki, J.J. Kuffner, and S. Kagami. An adaptive action model for legged navigation planning. In *IEEE/RAS Int. Conf. on Humanoid Robotics (Humanoids'07)*, 2007.

[36] P. Michel, J. Chestnutt, S. Kagami, K. Nishiwaki, J.J. Kuffner, and T. Kanade. GPU-accelerated real-time 3D tracking for humanoid locomotion. In *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS'07)*, 2007.

[37] R. Diankov and J.J. Kuffner. Randomized statistical path planning. In *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS'07)*, 2007.

[38] P. Michel, C. Scheurer, J.J. Kuffner, R. Dillmann, and T. Asfour. Planning for robust execution of humanoid motions using future perceptive capability. In *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS'07)*, 2007.

[39] M. Zucker, J.J. Kuffner, and M. Branicky. Multipartite RRTs for rapid replanning in dynamic environments. In *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA'07)*, 2007.

[40] M. Hwangbo, J.J. Kuffner, and T. Kanade. Efficient two-phase 3D motion planning for small fixed-wing UAVs. In *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA'07)*, 2007.

[41] M. Stilman, J-U. Shamburek, J.J. Kuffner, and T. Asfour. Manipulation planning among movable obstacles. In *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA'07)*, 2007.

[42] K. Steinbach, J.J. Kuffner, T. Asfour, and R. Dillman. Collision and self-collision detection for humanoids based on sphere tree hierarchies. In *Proc. IEEE/RAS Int. Conf. on Humanoid Robotics (Humanoids'06)*, 2006.

[43] M. Stilman, K. Nishiwaki, S. Kagami, and J.J. Kuffner. Planning and executing navigation among movable obstacles. In *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS'06)*, 2006.

[44] P. Bhat, J.J. Kuffner, S. Goldstein, and S. Srinivasa. Hierarchical motion planning for self-reconfigurable modular robots. In *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS'06)*, 2006.

[45] M. Lau and J. Kuffner. Precomputed search trees: Planning for interactive goal-driven animation. In *Proc. ACM SIGGRAPH / Eurographics Symposium on Computer Animation*, 2006.

[46] M. Stilman and J.J. Kuffner. Planning among movable obstacles with artificial constraints. In *Proc. 6th Int'l Workshop on the Algorithmic Foundations of Robotics (WAFR'06)*, 2006.

[47] D. Bertram, J.J. Kuffner, T. Asfour, and R. Dillman. A unified approach to inverse kinematics and path planning for redundant manipulators. In *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA'06)*, pages 1874–1879, 2006.

[48] J. van den Berg, D. Ferguson, and J.J. Kuffner. Anytime path planning and replanning in dynamic environments. In *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA'06)*, pages 2366–2371, 2006.

[49] J. Chestnutt, P. Michel, K. Nishiwaki, J.J. Kuffner, and S. Kagami. An intelligent joystick for biped control. In *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA'06)*, pages 860–865, 2006.

[50] L. Guilamo, J.J. Kuffner, K. Nishiwaki, and S. Kagami. Manipulability optimization for trajectory generation. In *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA'06)*, pages 2017–2022, 2006.

[51] P. Michel, J. Chestnutt, S. Kagami, K. Nishiwaki, J. Kuffner, and T. Kanade. Online environment reconstruction for biped navigation. In *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA'06)*, pages 3089–3094, 2006.

[52] Philipp Michel, Joel Chestnutt, James Kuffner, and Takeo Kanade. Vision-guided humanoid footstep planning for dynamic environments. In *Proc. IEEE/RAS Int. Conf. on Humanoid Robotics (Humanoids'05)*, pages 13–18, 2005.

[53] M. Lau and J. Kuffner. Behavior planning for character animation. In *Proc. ACM SIGGRAPH / Eurographics Symposium on Computer Animation*, 2005.

[54] L. Guilamo, J. Kuffner, K. Nishiwaki, and S. Kagami. Efficient prioritized inverse kinematic solutions for redundant manipulators. In *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS'05)*, 2005.

[55] M. Stilman, C.G. Atkeson, and J.J. Kuffner. Dynamic programming in reduced dimensional spaces : Dynamic planning for robust biped locomotion. In *Proc. IEEE Int'l Conf. on Robotics and Automation (ICRA'2005)*, 2005.

[56] J. Chestnutt, M. Lau, J.J. Kuffner, G. Cheung, J. Hodgins, and T. Kanade. Footstep planning for the ASIMO humanoid robot. In *Proc. IEEE Int'l Conf. on Robotics and Automation (ICRA'2005)*, 2005.

[57] T. Komura, H. Leung, S. Kudoh, and J. Kuffner. A feedback controller for biped humanoids that can counteract large perturbations during gait. In *Proc. IEEE Int'l Conf. on Robotics and Automation (ICRA'2005)*, 2005.

[58] N. Vandapel, J.J. Kuffner, and O. Amidi. Planning 3-D path networks in unstructured environments. In *Proc. IEEE Int'l Conf. on Robotics and Automation (ICRA'2005)*, 2005.

[59] M. Stilman and J.J. Kuffner. Navigation among movable obstacles : Real-time reasoning in complex environments. In *Proc. IEEE Int. Conf. on Humanoid Robotics (Humanoids'04)*, 2004

[60] J. Chestnutt and J.J. Kuffner. A tiered planning strategy for biped navigation. In *Proc. IEEE Int. Conf. on Humanoid Robotics (Humanoids'04)*, 2004.

[61] Taku Komura, Howard Leung, and James Kuffner. Animating reactive motions for biped locomotion. In *Proc. ACM Symp. on Virtual Reality Software and Technology (VRST'04)*, 2004.

[62] J.J. Kuffner. Efficient optimal search of euclidean-cost grids and lattices. In *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS'04)*, pages 1946–1951, 2004.

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