

## **Li Han**

### **Education**

August 2000 Ph.D. in Computer Science, Texas A&M University  
June 1992 M.S. in Biomedical Engineering, Xi'an Jiaotong University  
July 1989 B.S. in Biomedical Engineering, Xi'an Jiaotong University

### **Teaching Appointment**

2002–present Clark University (Assistant Professor of Computer Science)

### **Research Appointment**

2000-2002 Carnegie Mellon University (Postdoctoral Researcher)

### **Visiting Positions**

March-April, 2007 Hong Kong University of Science and Technology  
March-July, 2007 Harbin Institute of Technology - ShenZhen Graduate School

### **Other Employment**

1992-1995 R&D Engineer, Shenzhen Zhonghang Computer Corp., China

### **Committee Memberships at Clark**

Member of the Information Technology Committee (ITC) (2007-present)  
ITC Liaison to the Library Committee (2008 - present)  
Member of the Clark Research Board (2004)  
Member of the Parallel Computing Cluster Group (2003 - present)  
Member of the Departmental Bioinformatics Committee  
Member of the Departmental Computer Science Curriculum Committee

### **Teaching Activities**

- (normal course load: two courses per semester including one with a lab)
- CSCI 120 (formerly CSci101) - Lecture, Computer Programming I (Fall 03, Spring 04, Fall 06–08)

- CSCI 120 (formerly CSci101) - Lab, Computer Programming I (Spring 04, Spring 05, Fall 06–08)
- MATH 110 - Seminar, Motion Planning (Fall 05, Spring 2006)
- CSCI 160 - Lecture and Lab, Data Structure and Algorithm Analysis (Fall 05)
- CSCI 180 - Lecture, Automata Theory (Fall 05–08)
- CSCI 201 - Lecture, Proseminar - Computer Graphics (Fall 02)
- CSCI 250 - Lecture and Lab, Software Design and Development (Spring 03)
- CSCI 260 - Lecture and Lab, Computer Graphics (Spring 04–06)
- CSCI 265 - Lecture and Lab, Robotics (Spring 03–05)
- Other - Protein Geometry Work Group (Fall 03)
- (Maternity Leave: Fall 04, Spring 08)
- (Pre-tenure Sabbatical Leave: Spring 07)

### **Supervisor of Undergraduate Honors Theses and Research**

Project Periods Student Names, Classes and First Positions after Clark

2008–present	Dylan Glotzer '11 Jonathon Moran '10 Samuel Dorsey-Gordon '09 Charles Ha '09 Daniel Menard '09 James Wilson '09
Spring 2008	John Burke '08 (a research intern at Wright-Patterson Air Force Base in Dayton, OH)
2005 – 2007	Ihar Valodzin '07 (a project manager for infrastructure integration initiatives at Aetna)
2005 – 2006	Jonathon Blumenthal '06 (a software developer at Iron Mountain Inc.)
2004 – 2005	Boyan Yordanov '05 (a doctoral student in bioinformatics at Boston University)

- 2003 – 2004    Marc Snyder '04 (a law student at University of Maryland Law School)
- 2003            Stephen Berard '03 (a doctoral student in computer science at Rensselaer Polytechnic Institute)  
Peter Sibley '03 (a doctoral student in computer science at Brown University)

### **Member of the Doctoral Dissertation Committees**

- 2004–2007    Haijun Yang (Chemistry)

### **Professional Activities**

- Member of
  - Association for Computing Machinery
  - Institute of Electrical and Electronics Engineers
- Co-Organizer for the special session on Topological Robotics, the AMS Eastern Section Meeting, April 25-26, 2009
- Member of the WPI RICC (Robotics Innovation Competition and Conference) Steering Committee (2008-present)
- Program Committee Member for
  - 2006-2008 Robotics: Science and Systems (RSS, a competitive annual robotics conference series with the first one held in 2005)
- Referee for
  - IEEE Transactions on Robotics
  - IEEE Transactions on Automation Science and Engineering
  - IEEE Transactions on Robotics and Automation
  - IEEE Transactions on Neural Networks
  - IEEE/ASME Transactions on Mechatronics
  - Intelligent Automation and Soft Computing Journal
  - International Journal of Robotics Research
  - International Journal on Robotics and Automation
  - IEEE International Conference on Robotics and Automation

- IEEE/RSJ International Conference on Intelligent Robots and Systems
- IEEE International Symposium on Assembly and Task Planning
- Workshop on Algorithmic Foundations of Robotics
- Robotics: Science and Systems

### Grants

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|------|---|
| 2008 | PI, NSF, Supplement Support for <i>Research Experiences for Undergraduates for the Project "RI: Practical Parametrization and Efficient Motion Planning of Linkage Systems"</i> , L. Han(PI), and L. Rudolph  |
| 2007 | PI, NSF, <i>RI: Practical Parametrization and Efficient Motion Planning of Linkage Systems</i> , L. Han(PI), and L. Rudolph   |
| 2004 | Co-PI, Clark University Faculty Development Fund, <i>CHESHIRE: A Multipurpose Interactive Computer Environment for the Systematic Exploration of Configuration Spaces</i> , L. Rudolph (PI) and L. Han  |
| 2003 | Co-PI, NSF Major Research Instrumentation Grant, <i>Acquisition of a High Performance Parallel Computing Cluster for the Departments of Biology, Chemistry, Physics, and Mathematics and Computer Science at Clark University</i> , D. Hibbet (PI), R. Bruschweiler, H. Gould, L. Han, and S. Huo |
| 2001 | Co-PI, Pennsylvania Infrastructure Technology Alliance, <i>Product Models to Support Design Interaction</i> , C.J.J. Paredis (PI) and L. Han  |

### Honors and Awards

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| 2008           | Exceptional Merit Award, Clark University  |
| 2000           | Graduate Student Research Excellence Award, Department of Computer Science, Texas A&M University                         |
| 1999 - present | Member of the Honor Society of Phi Kappa Phi   |
| 1986-1989      | Student in Special Class at Xi'an Jiaotong University (the only special engineering student class supervised by the Min- |

istry of Education of China at the time that allowed students to receive B.S. in three years upon competent performance in undergraduate study)

## Publications

### Refereed Journals

L. Han, J.C. Trinkle, and Z. Li, *Grasp Analysis as Linear Matrix Inequality Problems*, IEEE Transactions on Robotics and Automation, 16(6), December 2000, pp. 663-674.

H. Yang, H. Wu, L. Han, and S. Huo, *A Temperature-Dependent Probabilistic Roadmap Algorithm for Calculating Variationally Optimized Conformational Transition Pathways*, Journal of Chemical Theory and Computation, 2007; 3(1) pp 17 - 25; Web Release Date: November 15, 2006. (Article) DOI: 10.1021/ct0502054.

D. Li, L. Han, and S. Huo, *Structural and Pathway Complexity of  $\beta$ -Strand Reorganization within Aggregates of Human Transthyretin(105-115) Peptide*, Journal of Physical Chemistry, 111: 5425-5433, 2007. Web Release Date: 14-Apr-2007; (Article) DOI: 10.1021/jp0703051.

D. Li, H. Yang, L. Han, and S. Huo. *Predicting the Folding Pathway of Engrailed Homeodomain with a Probabilistic Roadmap Enhanced Reaction-path Algorithm*, Biophysical J., 94, 1622-1629, 2008.

L. Han, L. Rudolph, J. Blumenthal, and I. Valodzin, *Convexly Stratified Deformation Space and Efficient Path Planning for a Planar Closed Chain with Revolute Joints*, accepted to The International Journal of Robotics Research, in press 2008.

### Refereed Contributions to Book Collections of Papers

L. Han and N.M. Amato, *A Kinematics-Based Probabilistic Roadmap Method for Closed Chain Systems*, Algorithmic and Computational Robotics - New Directions, eds. B. Donald, K. Lynch and D. Rus, Springer Verlag, June 2000, pp. 233-246.

L. Han and L. Rudolph, *Inverse Kinematics for a Serial Chain with Joints under Distance Constraints*, Robotics: Science and Systems II (RSS 2006), eds. Wolfram Burgard, Oliver Brock and Cyrill Stachniss, MIT press, 2007, pp. 177-184.

L. Han, L. Rudolph, J. Blumenthal, and I. Valodzin, *Stratified Deformation Space and Path Planning for a Planar Closed Chain with Revolute Joints*, Algorithmic Foundations for Robotics (WAFR 2006), eds. S. Akella, N. Amato, W. Huang and B. Mishra, in Springer STAR series, Springer Verlag 2007.

L. Han and L. Rudolph, *Simplex-Tree Based Kinematics of Foldable Objects as Multi-body Systems Involving Loops*, Robotics: Science and Systems IV (RSS 2008), MIT press, in press 2008.

### Refereed Conference Proceedings

L. Han and P. He, *A Randomized Parallel Algorithm for Computer Stereo Vision*, Proceedings of the 1991 National Conference on Pattern Recognition and Artificial Intelligence, China, August 1991.

J.C. Trinkle, S.-L. Yeap, and L. Han, *When Quasi-static Jamming is Impossible*, Proceedings of the 1996 IEEE International Conference on Robotics and Automation (ICRA'96), May 1996, pp. 3401-3406.

L. Han, Y. Guan, Z. Li, S. Qi, and J.C. Trinkle, *Dexterous Manipulation with Rolling Contacts*, Proceedings of the 1997 IEEE International Conference on Robotics and Automation (ICRA'97), May 1997, pp. 992-997.

L. Han and J.C. Trinkle, *The Instantaneous Kinematics and Planning of Dexterous Manipulation*, Proceedings of the 1997 IEEE International Symposium on Assembly and Task Planning (ISATP'97), August 1997, pp. 60-65.

L. Han and J.C. Trinkle, *Object Reorientation with Finger Gaiting*, Proceedings of 2nd IMACS International Multi-conference: Computational Engineering in Systems Applications (CESA'98), co-sponsored by IEEE, April 1998.

L. Han and J.C. Trinkle, *The Instantaneous Kinematics of Manipulation*, Proceedings of the 1998 IEEE International Conference on Robotics and Automation (ICRA'98), May 1998, pp. 1944-1949.

L. Han and J.C. Trinkle, *Dexterous Manipulation by Rolling and Finger Gaiting*, Proceedings of the 1998 IEEE International Conference on Robotics and Automation (ICRA'98), May 1998, pp. 730-735.

L. Han, J.C. Trinkle, and Z. Li, *Grasp Analysis as Linear Matrix Inequality Problems*, Proceedings of the 1999 IEEE International Conference on Robotics and Automation (ICRA'99), May 1999, pp. 1261-1268.

L. Han, Z. Li, J.C. Trinkle, Z. Qin and S. Jiang, *The Planning and Control of Robot Dexterous Manipulation*, Proceedings of the 2000 IEEE International Conference on Robotics and Automation (ICRA'00), April 2000, pp. 263-269.

L. Han, C.J. J. Paredis and P.K. Khosla, *Object-Oriented Libraries of Physical Components in Simulation and Design*, Proceedings of the 2001 Summer Computer Simulation Conference, July 2001, pp. 1-8.

L. Han and C.J.J. Paredis, *Meta-Models for Composable Simulation and Design*, Proceedings of the 2002 Advanced Simulation Technology Conference, April 2002.

L. Han, *Hybrid Probabilistic Roadmap and Monte Carlo Methods for Biomolecule Conformational Changes*, poster and extended abstract of the Eighth Annual International Conference on Research in Computational Molecular Biology, March 2004 .

L. Han, *Hybrid Probabilistic Roadmap-Monte Carlo Motion Planning for Closed Chain Systems with Spherical Joints*, proceedings of the 2004 IEEE International Conference on Robotics and Automation, April 2004, pp. 920-926.

L. Han, L. Rudolph, *A Unified Geometric Approach for Inverse Kinematics of a Spatial Chain with Spherical Joints*, proceedings of the 2007 International Conference on Robotics and Automation (ICRA 2007), Rome, Italy, April 2007, pp. 4420-4427.

### **Paper under Review**

Li Han, Lee Rudolph, Sam Dorsey-Gordon, Dylan Glotzer, Dan Menard, Jon Moran, and James R. Wilson, *Bending and Kissing: Computing Non-Self-Colliding Configurations of Planar Loops with Revolute Joints*, submitted 2008.