

Education	Stanford University Ph. D, Computer Science (expected 2013) GPA: 4.1 Research interests: Inductive program synthesis, probabilistic programming, procedural modeling California Institute of Technology B.S., Mathematics and Computer Science (2008) GPA: 3.5
Research Experience	Research Assistant (Advisor: Dr. Patrick Hanrahan) Fall 2008 - present Conducting research in procedural modeling using techniques from probabilistic inference and inductive program synthesis. Investigating differences in expressivity between procedural representations of 3D models and methods for learning them from structured data. Also, investigating compilation techniques for increasing the efficiency of probabilistic inference algorithms. Google Research Intern (Supervisor: Dr. Moshe Looks) Summer 2012 Conducted research in inductive program synthesis. Formulated new ways to use existing hand-written code to assist program induction, allowing previously intractable program synthesis problems to be solved quickly. Used partial evaluation techniques to roughly double the efficiency of the algorithm. Square-Enix Research Intern (Supervisor: Dr. James Geraci) Summer 2010 Conducted research in video game AI and player modeling. Built a Starcraft AI that participated in the AIIDE 2010 Starcraft competition which used particle filtering to infer high-level strategic variables. Created a rhythm game that informed the player of areas needing improvement by using a variable-order Markov model to infer note sequences likely to cause a missed note, which was the basis for a SIGGRAPH Asia 2010 sketch. Summer Undergraduate Research Fellowship Summer 2006 Working with Dr. Mathieu Desbrun (Caltech Applied Geometry Lab), developed novel subdivision schemes which granted a higher degree of control over the geometry and implemented them in OpenGL/C++. Produced 3D models to test the new schemes. Summer Undergraduate Research Fellowship Summer 2005 Working with Dr. Peter Schröder (Caltech Multiresolution Modeling Group), analyzed the behavior of a gradient descent method of Willmore flow for iterative surface smoothing. Explored the effects of Willmore flow on surfaces of different principal curvatures and triangulations. Identified issues and proposed/implemented improvements.
Industry Experience	FastSoft: Kernel/Infrastructure Developer 2008, Summer 2007 Worked on 1Gbit and 10Gbit WAN acceleration products. Contributed improvements to the core FAST TCP congestion control algorithm that greatly improved performance under a variety of problematic network conditions. Built on work done during internship in summer 2007, developed QA tools, ran performance benchmarks and highlighted problem areas.

Publications

Lingfeng Yang, Yi-Ting Yeh, Noah D. Goodman, and Pat Hanrahan. **Incrementalizing MCMC in Probabilistic Programs through Tracing and Slicing**. Submitted to PLDI 2013.

Jerry O. Talton, Lingfeng Yang, Ranjitha Kumar, Maxine Lim, Noah D. Goodman, and Radomír Měch. **Learning Design Patterns with Bayesian Grammar Induction**. In proceedings of UIST 2012. **Best paper nominee**.

Yi-Ting Yeh, Lingfeng Yang, Matthew Watson, Noah D. Goodman, and Pat Hanrahan. **Synthesizing Open Worlds with Constraints using Locally Annealed Reversible Jump MCMC**. ACM Transactions on Graphics 2012.

Yi-Ting Yeh, Katherine Breeden, Lingfeng Yang, Matthew Fisher, and Pat Hanrahan. **Synthesis of Tiled Patterns using Factor Graphs**. ACM Transactions on Graphics, to be presented SIGGRAPH 2013.

Lingfeng Yang. **Modeling Player Performance In Rhythm Games**. ACM SIGGRAPH Asia 2010 Sketches.

Jerry O. Talton, Daniel Gibson, Lingfeng Yang, Pat Hanrahan, and Vladlen Koltun. **Exploratory Modeling with Collaborative Design Spaces**. Proceedings of the 2nd Annual ACM SIGGRAPH Conference Exhibition in Asia, December 2009.

Teaching Experience

Course Assistant for Stanford CS 242: Programming Languages Fall 2010
Course Assistant for Stanford CS 148: Introduction to Computer Graphics Summer 2009
Course Assistant for Caltech CS 129b: Information and Complexity Spring 2008

Honors and Awards

ACM UIST Best Paper Nominee 2012
Intel PhD Fellowship 2009-2010
1st Place Stanford Rendering Competition 2009
Stanford School of Engineering Fellowship 2008-2009
National Science Foundation Graduate Research Fellowship Honorable Mention 2008

Coursework

Graphics: Discrete Differential Geometry, GPU Programming, Intro Graphics Research, Computer Graphics Projects, Intro Computer Graphics, Image Synthesis

Computer Science: Machine Learning, AI, Programming Languages, Information Theory, Computability and Complexity, Algorithms, Computing Systems, Programming Methods, Software Engineering, C++ Lab

Mathematics: Differential Geometry/Topology, Lattice Theory, Number Theory, Logic, Real/Complex Analysis, Topology, Abstract Algebra, Calculus of One and Several Variables, Linear Algebra