Jessica Su
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Education

- **Stanford University** — Palo Alto, CA
  PhD student, Computer Science — *September 2013 - present*
- **California Institute of Technology** — Pasadena, CA
  B.S., Computer Science (3.8 GPA) — *September 2007 - June 2013*

Publications

- Marcolli M and **Su J** (2013) Arithmetic of Potts Model Hypersurfaces. International Journal of Geometric Methods in Modern Physics 10-4. arXiv:1112.5667 [math-ph].
- Liebovitch L, Peluso P, Norman M, **Su J**, Gottman J (2011) Mathematical model of the dynamics of psychotherapy. Cognitive Neurodynamics 1-11.
- Peluso P, Liebovitch L, Gottman J, **Su J** (2011) A mathematical model of psychotherapy: an investigation using dynamic non-linear equations to model the therapeutic relationship. Psychotherapy Research.
- Ward C, **Su J**, Huang Y, Lloyd A, Gould F, Hay B (2011) Medea selfish genetic elements as tools for altering traits of wild populations: a theoretical analysis. Evolution 65:1149-1162.
- Hay B, Chen CH, Ward CM, Huang H, **Su JT**, Guo M (2010) Engineering the genomes of wild insect populations: Challenges, and opportunities provided by synthetic Medea selfish genetic elements. Journal of Insect Physiology 56(10):1402-1413.
- Chen CH, Huang H, Ward CM, **Su JT**, Schaeffer LV, Guo M, Hay BA (2007) A synthetic maternal-effect selfish genetic element drives population replacement in Drosophila. Science 316:597-600.
- M.D. Norman, L.S. Liebovitch, P.R. Peluso, **J. Su**, J.M. Gottman. Mathematical Model of the Dynamics of Psychotherapy. International Conference on Complex Systems, June 2011, Cambridge MA.
- L. S. Liebovitch, P. R. Peluso, **J. Su**, J. Gottman. 2010. Mathematical Model of Psychotherapy - A New Approach to Understanding the Therapeutic Relationship. Association for Psychological Science, May 29, 2010, Boston MA.

Research Experience

- **Microsoft Research** — Mountain View, CA
  Intern — *June 2014 - September 2014*
  - Working with Nina Mishra on a data mining project.
- **Virginia Williams, Department of Computer Science** — Stanford, CA
  Research Assistant — *April 2014 - June 2014*
  - Designed an algorithm to solve the multiple-fault replacement paths problem in linear query time.
- **Ashish Goel, Department of Management Science and Engineering** — Stanford, CA
  Research Assistant — *January 2014 - March 2014*
  - Investigated voting systems that encourage people to come to consensus on issues.

- **Jure Leskovec, Department of Computer Science** Stanford, CA
  Research Assistant *September 2013 - December 2013*
  - Designed and implemented an algorithm to generate graphs with specific subgraph counts.
- **Matilde Marcolli, Caltech, Department of Mathematics** Pasadena, CA
  Summer Undergraduate Research Fellow *June 2011 - August 2011*
  - Proved that Tutte polynomials do not satisfy the Kontsevich conjecture.
- **Noah Goodman, MIT, Department of Brain and Cognitive Sciences** Cambridge, MA
  Research Intern *June 2010 - August 2010*
  - Ran computer-based experiments to explore how people learn new words.
- **Larry Liebovitch, FAU, Complex Systems and Brain Sciences** Boca Raton, FL
  Research Intern *November 2009 - February 2010*
  - Used nonlinear differential equations to model therapist-client interactions.
  - Solved the equations of the model analytically.
- **Rob Phillips, Caltech, Department of Biology** Pasadena, CA
  Summer Undergraduate Research Fellow *June 2007 - August 2007*
  - Used a modified version of BLAST to search for motor proteins in bacteria.
- **Bruce Hay, Caltech, Department of Biology** Pasadena, CA
  Research Intern *June 2006 - August 2006*
  - Modeled the dynamics of maternal-effect selfish genes.

Class Projects

- **An analysis of congressional tweets** *Spring 2013*
  - Scraped tweets made by congresspeople and used MySQL to correlate them with relevant characteristics of the user.
- **Netflix challenge** *Fall 2012*
  - Used machine learning to predict movie ratings from training data.

Skills

- **Computer science classes:** Machine learning (3 classes), neural computation, lattices and convexity, computability theory, complexity theory, algorithms, graph algorithms, algebraic graph algorithms, systems, databases, social network analysis
- **Math classes:** Real analysis, abstract algebra, combinatorics, stochastic processes, dynamical systems
- **Other classes:** Waves, quantum mechanics, statistical physics, error-correcting codes, systems biology
- **Computer skills:**
  - Comfortable with: Python, MATLAB, Java, C, C++, MySQL, Unix, LaTeX
  - Have used before: Mathematica, R, Perl, C#, Objective-C, Haskell, Assembly

Work Experience

- **SKIES** Pasadena, CA
  Intern *June 2013 - August 2013*

- Built image search for a collaborative education app.

- **Protabit LLC** Pasadena, CA
  Intern *June 2012 - September 2012*
  - Used bioinformatics tools to analyze the efficacy of protein design software.

- **Kaplan Test Prep and Admissions** Boca Raton, FL
  Instructor *July 2008 - March 2009*
  - Taught SAT preparation classes. Tutored individual students for the SAT and SAT II.

Awards

- Top 500 Putnam (2008)
- Lingle Scholarship (2007, awarded to top two freshmen in incoming class)
- Axline Scholarship (2007, full ride merit scholarship)