Jeremy Thorpe

107 S. Holliston Av., Pasadena, CA 91106, (626) 676-4710 jeremy@systems.caltech.edu

Objective: To obtain a postdoctoral position in the area of Communications or Machine Learning

Education:

Doctor of Philosophy, Electrical Engineering, California Institute of Technology, Expected June 2004.

Master of Science, Electrical Engineering, California Institute of Technology, June 2001.

Bachelor of Science, Electrical Engineering, University of California at Riverside, June 2000.

Experience:

Research Assistant July 2002–Present
Jet Propulsion Laboratory, Pasadena, CA. Evaluated irregular and multi-edge-type LDPC codes via exact and approximate density evolution. Developed low-complexity decoders for LDPC codes. Presently developing protograph based codes as a candidate for space flight.

Intern July–Sept. 2003
Microsoft Research, Redmond, WA. Investigated link-based static webpage ranking as part of summer search camp. Investigated several SAT algorithms on random 3SAT and gained insight into the Survey Propagation algorithm.

Visiting Researcher July–Sept. 2001
Sony Information and Network Technologies Lab, Tokyo. Investigated the dual domain soft-input soft-output (DSISO) convolutional code decoder for high-rate convolutional codes.

Research Assistant July–Sept. 2000
Jet Propulsion Laboratory, Pasadena, CA. Modelled and investigated a distributed inference problem representing environment sensing in a robot colony.

Research Assistant Dec. 1998–June 2000
University of California, Riverside. With advisor Dr. Ilya Dumer, Investigated analytically and by computer simulation the performance of several classes of error-correcting codes under iterative decoding algorithms. Designed and implemented in an FPGA a low-complexity decoder for a regular (3,6) low-density parity check code.

Honors: Chauncey Medberry Fellowship, Caltech, 2000-2001.

2nd Place, Regional ACM Research Poster Contest, Florham Park, NJ, Oct. 23, 2000.

Outstanding Undergraduate, Electrical Engineering Dept. Undergraduate Honors Convocation, April 24, 1999

Publications: Dariush Divsalar, Sam Dolinar, Jeremy Thorpe. *Accumulate Repeat Accumulate Accumulate Codes.* (To be submitted to IEEE Transactions on Information Theory)

Dimitris Achlioptas, Jeremy Thorpe. *Analysis of Survey Propagation Based SAT Solving.* (To be submitted to RANDOM 2004)

Jeremy Thorpe, Kenneth Andrews, Sam Dolinar. *Methodologies for Designing LDPC Codes using Protographs and Circulants.* (Submitted to ISIT 2004)

Jeremy Thorpe. *LDPC Codes Constructed From Protographs.* IPN Progress Reports Vol. 42-154. Aug. 2003. pp 1-7.

Jeremy Thorpe. *Design of LDPC Graphs for Hardware Implementation.* IEEE Symposium on Information Theory, Lausanne, Switzerland. June 30-July 5, 2002. Proceedings pp 483.

Robert McEliece and Jeremy Thorpe. *Data Fusion Algorithms for Collaborative Robotic Exploration.* IPN Progress Reports Vol. 42-149 Jan 2002. pp 1-14.

Jeremy Thorpe. *The Dual Domain Soft Input Soft Output Algorithm for High Rate Convolutional Codes.* (Sony Internal Report, Summer 2001).

Jeremy Thorpe and Robert McEliece. *Robot Colony Inference.* 2000 Lee Center Annual Workshop Poster Presentation. Published in CD-ROM.

Jeremy Thorpe. *Design and Hardware Implementation of a Message-Passing Decoder for LDPC Codes.* Senior Thesis, UCR.

Gregory Kabatianski, V.S. Lebedev, J. Thorpe. *The Mastermind game and the rigidity of the Hamming space.* IEEE International Symposium on Information Theory. Sorrento, Italy. June 25-30, 2000. Proceedings pp 375.

Languages: Japanese (JLPT, 2-kyu level)

Chinese (first year of study)

C#, VHDL, Matlab, C/C++

References: Robert McEliece, Caltech ..... rjm@systems.caltech.edu

Ilya Dumer, UC Riverside ..... dumer@ee.ucr.edu

Fabrizio Pollara, JPL ..... fabrizio@shannon.jpl.nasa.gov