## Jeremy Thorpe

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**Objective:** To receive a Microsoft Research Graduate Fellowship

**Education:**

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

**Master of Science**, Electrical Engieneering, California Institute of Technology, 2001.

**Bachelor of Science**, Electrical Engineering, University of California, Riverside, 2000.

**Experience:**

**Summer Researcher** July 2002–Present
**Jet Propulsion Laboratory, Pasadena, CA.** Investigated current constructions of irregular and multi-edge-type low-density parity check (LDPC) codes. Developed and investigated a class of low-complexity decoders for LDPC codes.

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

**Summer Researcher** July 2000–September 2000
**Jet Propulsion Laboratory, Pasadena, CA.** Modelled and investigated a distributed inference problem representing environment sensing in a robot colony.

**Research Assistant** December 1998–June 2000
**University of California, Riverside.** With adviser 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) LDPC 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., UCR, 1999.

**Publications:** *(Available at http://www.systems.caltech.edu/~jeremy/research/research.html)*

Jeremy Thorpe and Robert McEliece. *Reward Functions for Probabilistic Inference*. (to be submitted to IEEE International Symposium on Infomration Theory 2003)

Jeremy Thorpe. *Design of LDPC Graphs for Hardware Implementation*. IEEE International 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 Decoding Algorithm for High-Rate Low-Density Parity Check 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.

**References:** Robert McEliece, California Institute of Technology , `rjm@systems.caltech.edu`

Ilya Dumer, University of California, Riverside, `dumer@ee.ucr.edu`

Fabrizio Pollara, Jet Propulsion Lab, `fabrizio@shannon.jpl.nasa.gov`