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- **Research Interests**
  My research interests are in the areas of stochastic modeling and simulation, including methods for approximating the behavior of nonstationary queueing networks and techniques for simulating nonstationary, non-Poisson arrival processes.

- **Education**

  Northwestern University, Evanston, IL

  - Doctor of Philosophy in Industrial Engineering and Management Sciences: June, 2009.
    Major: Stochastic Modeling and Analysis
    Minors: Optimization, Production and Logistics
    Advisor: Professor Barry L. Nelson
  - Master of Science in Industrial Engineering and Management Sciences: June, 2006.

  Massachusetts Institute of Technology, Cambridge, MA

  - Bachelor of Science in Mathematics: June, 1999.
  - Bachelor of Science in Economics: June, 1999.

- **Research Papers**

  - "Transforming renewal processes for simulation of nonstationary arrival processes", with Barry L. Nelson, *INFORMS Journal on Computing*, 2009, forthcoming.
  - "On capturing dependence in point processes: Matching moments and other techniques", with Barry L. Nelson, working paper.

- **Teaching Experience**

  Northwestern University, Evanston, IL

  - **Course Instructor**: IEMS 317-0 (Discrete Event Systems Simulation) - Winter, 2008. Complete responsibility for course delivery and assessment plan (including all lectures, computer lab projects, simulation design projects, in-class activities, and exams), as well as resolution of student conflicts and assignment of final grades.
  - **Teaching Assistant**: IEMS 317-0 (Discrete Event Systems Simulation) - Fall, 2007. Responsible for organization of weekly lab sessions; also, held semi-weekly office hours and graded simulation projects.

  M.I.T. Undergraduate Mathematics Department, Cambridge, MA

- **Recitation Instructor**: 18.03 (Differential Equations) - Fall, 1997 to Spring, 1999. One of four undergraduates selected to serve in Teaching Assistant position. Instructed a class of 25 students in differential equations.
- **Tutor/Grader**, Undergraduate Math Department - Fall, 1996 to Spring, 1997. Tutored students in Calculus I, II & III, and graded work for recitation instructors.

My complete teaching portfolio, including evaluations, is available at
`http://users.iems.northwestern.edu/~ifghardt/Gerhardt_TeachingPortfolio.pdf`

- **Presentations**
  - "Transforming Renewal Processes for Simulation of Nonstationary Point Processes", Joint Mathematics Meetings, Washington, DC, Jan., 2009.
  - "Analysis of Queueing Networks by Approximating Departure Count Processes", INFORMS Annual Meeting, Washington, DC, Oct., 2008.
  - "Time-dependent Approximation of Nonstationary Tandem Queueing Networks", Midwest Regional INFORMS, Evanston, IL, Aug., 2007.

- **Work Experience**

  Merrill Lynch & Co., New York, NY
  Assistant Vice-President, Global Portfolio Sales & Trading - 1999–2004.

  - Member of original design and support team for Merrill Lynch's *Portfolio Trading Analytics/Global Equity Analytics* (PTA/GEA) software. I introduced PTA/GEA to over 300 Merrill Lynch institutional clients, and served as the primary liaison between clients and the programming team.
  - Member, Portfolio Quantitative team. Architect of daily trade performance monitors for all areas: Agency (serve as client broker), Risk (proprietary) and Automated Strategy trading. Member of team that implemented Merrill Lynch's Optimal Portfolio Liquidation (OPL) strategy to Equity business, helping to minimize market impact and transaction cost on approximately $1.5 billion in trade-flow daily.
  - Head architect of analytics for Portfolio Transition team. Designed interface for maintaining and monitoring all top-tier client transitions. Created all pre- and post-trade cost and savings reports.
  - Assisted trading desk with daily research projects, gathering price and volume data in efforts to improve client trade execution. Acted as the primary business support for product and general client-driven analytics inquiries.

  Analyst, Equity Trading Group - Summer, 1998.

  - Assisted brokers at the New York Stock Exchange, analyzed practices of the NASDAQ market, and prepared documentation for pricing models in the Global Equity Linked Products group.

- **Honors/Awards**

  Northwestern University

  - Teaching Assistant of the Year, IEMS Department, 2007–2008.
  - Recipient, Graduate Teaching Certificate, Searle Center for Teaching Excellence, Nov., 2008.
  - Selected as Graduate Counselor, Ford Dean's Scholars program, Robert R. McCormick School of Engineering and Applied Science, 2008–2009.
  - Selected as Graduate Counselor, Murphy Institute Scholars program, Robert R. McCormick School of Engineering and Applied Science, 2008–2009.
  - Recipient, Walter P. Murphy Fellowship, Northwestern University, 2004–2005.

  Other Honors

  - IIE Doctoral Colloquium, Vancouver, BC, Canada, May, 2008.

- **Service**

  - Referee, *Naval Research Logistics.*
  - Session chair, INFORMS Annual Meeting, Washington, DC, Oct., 2008.
  - Student Board member, INFORMS chapter, Northwestern University, 2005–2006.
  - First-year Representative, IEMS Graduate Liaison Committee, Northwestern University, 2004–2005.

- **Memberships**
  INFORMS, IIE, SIAM, M.I.T. Alumni Association, Alpha Epsilon Pi National Fraternity.

- **Computer Skills**

  - *Programming Experience*: MATLAB, VB, VBA, C, AMPL, Maple, STATA, SQL, KSQL, @Risk, Arena.
  - *Platforms*: Windows, Macintosh, Unix, Bloomberg.

- **References**
  - Professor Barry L. Nelson
    Department of Industrial Engineering and Management Sciences
    Northwestern University
    2145 Sheridan Road, Room C210
    Evanston, IL 60208
    (847) 491–3747
    nelsonb@northwestern.edu
  - Professor Jeremy Staum
    Department of Industrial Engineering and Management Sciences
    Northwestern University
    2145 Sheridan Road, Room D235
    Evanston, IL 60208
    (847) 491–2405
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  - Professor Michael R. Taaffe
    The Grado Department of Industrial and Systems Engineering
    Durham Hall
    Virginia Tech
    Blacksburg, VA 24061
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