Gopal Nataraj

CONTACT
INFORMATION

Ste. 4125 EECS
University of Michigan
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RESEARCH
INTERESTS

Medical Imaging and Accelerated Image Reconstruction
Magnetic resonance imaging, statistical signal processing, inverse problems, convex optimization

EDUCATION

University of Michigan — Ann Arbor, MI

Ph.D., Electrical Engineering: Systems — 05/2014-05/2017 *(expected)*
  – Thesis: Improving MR Data Acquisition and Image Reconstruction
  – Advisors: Prof. Jeffrey A. Fessler and Dr. Jon-Fredrik Nielsen

M.S.E., Electrical Engineering: Systems — 08/2012-05/2014
  – **GPA: 4.00/4.00**
  – **Major**: Signal processing
  – **Minor**: Biosystems (Biosignals and Imaging)
  – **Select Coursework**: Image Processing, Image Reconstruction, Machine Learning, Medical Imaging, Optimization, Statistical Signal Processing, Perturbation Theory, Matrix Methods in Signal Processing, Statistical Learning Theory, Random Matrix Theory, Partial Differential Equations

Cornell University — Ithaca, NY

B.S., College of Engineering — 08/2008-05/2012
  – **Primary Major**: Electrical and Computer Engineering
    • **Major GPA: 3.88**
    • **Select Coursework**: Digital Signal Processing, Probability and Random Processes, Complex Analysis, Feedback Control Theory
  – **Secondary Major**: Applied and Engineering Physics
    • **Major GPA: 3.81**
    • **Select Coursework**: Quantum Mechanics, Electrodynamics, Waves and Optics, Solid and Fluid Mechanics, Mathematical Methods in Physics

JOURNAL
PAPERS

(J2) **G. Nataraj**, J-F. Nielsen, and J. A. Fessler, "Optimizing MR Scan Design for Model-Based T_1, T_2 Estimation from Steady-State Sequences," *IEEE Trans. Med. Imag.*, 2015, submitted.

(J1) M. A. Noginov, H. Li, Yu. A. Barnakov, D. Dryden, **G. Nataraj**, G. Zhu, C. E. Bonner, M. Mayy, Z. Jacob, and E. E. Narimanov, "Controlling spontaneous emission with metamaterials," *Opt. Lett.* 35 (2010) 1863-5.

CONFERENCE
PAPERS

(C4) **G. Nataraj**, J-F. Nielsen, and J. A. Fessler, "A Min-Max CRLB Optimization Approach to Scan Selection for Relaxometry," *Proc. Int. Soc. Mag. Res. Med.* (2015) 1672.

(C3) **G. Nataraj**, J-F. Nielsen, and J. A. Fessler, "Model-based Estimation of T_2 Maps with Dual-Echo Steady-State MR Imaging," *Proc. IEEE Intl. Conf. on Im. Proc.* (2014) 1877-81.

(C2) **G. Nataraj**, J-F. Nielsen, and J. A. Fessler, "Regularized, Joint Estimation of T_1 and M_0 Maps," *Proc. Intl. Soc. Mag. Res. Med.* (2014) 3128.

(C1) **G. Nataraj**, K. Arai, and R. Adhikari, "Finite Element Analysis of Seismic Isolation Stacks at Caltech 40m," *LIGO Technical Letters* (2010).

HONORS AND AWARDS		
• Fellowship, *Innovative Signal Analysis, Inc.*		2014
• Student Travel Grant, *ISMRM*		2014, 2015
• Student Travel Grant, *Rackham Graduate School*		2014, 2015
• KLA-Tencor Best Project Award, *KLA-Tencor Corporation*		2013
• Graduated Magna Cum Laude, *Cornell University*		2012

AFFILIATIONS

- IEEE, *Student Member* — 2013-present
- ISMRM, *Student Member* — 2013-present

UNDERGRADUATE RESEARCH

California Institute of Technology — Pasadena, CA
Student Researcher — 06/2010-08/2010

- Laser Interferometer Gravitational-Wave Observatory (LIGO)
- Advisors: Asst. Prof. Rana Adhikari and Dr. Koji Arai
- Mechanical vibration analysis of passive isolation stacks at the Caltech 40-meter Interferometer, for improvement through active isolation in Advanced LIGO

Norfolk State University — Norfolk, VA
Student Researcher — 06/2009-08/2009

- Center for Materials Research (CMR)
- Advisor: Dr. Mikhail A. Noginov
- Optical and physical characterization of bulk metamaterials (silver nanorod and alumina composites) for use in invisibility cloaking devices

Carnegie Mellon University — Pittsburgh, PA
Student Researcher — 06/2007-07/2007

- Pennsylvania Governor's School for the Sciences (PGSS)
- Advisor: Dr. Michelle Hicks
- Designed and built Wilberforce Pendulums (coupled longitudinal and rotational oscillators)

TEACHING EXPERIENCE

WyzAnt, Inc. — Numerous Locations
Private Tutor — 05/2012-present

- Independent contractor for leading online tutoring marketplace
- Subjects: physics, math, computer programming, GRE/SAT/ACT test prep
- Tutor students with wide array of educational backgrounds (high school, undergraduate, graduate) as well as a wide array of ages (15-50)
- Rated **top physics tutor** in Pennsylvania
- For more info: `http://www.wyzant.com/Tutors/gopal`

University of Michigan — Ann Arbor, MI
Graduate Student Instructor — 09/2015 - 12/2015

- Junior-level course: Introduction to Probability
- Course instructor: Dr. Achilleas Anastasopoulous

University of Michigan — Ann Arbor, MI
Graduate Student Instructor — 01/2015 - 04/2015

- Sophomore-level course: Introduction to Signals and Systems
- Course instructors: Drs. Jessy Grizzle and Achilleas Anastasopoulous

Cornell University   Ithaca, NY
Physics Tutor   08/2010-05/2012

- Physics Learning Strategies Center
- Manager: Dr. Robert Lieberman
- Tutored students in undergraduate physics courses through both private and group-oriented instruction. Gave additional lectures when advisor was unavailable

Cornell University   Ithaca, NY
Teaching Assistant   01/2010-05/2010

- Freshman-level course: Introduction to Nanoengineering
- Course instructor: Dr. Jon Velazquez
- Laboratory instructor and grader

INDUSTRY
EXPERIENCE

IBM Corporation   Burlington, VT
Characterization Engineer   05/2011-08/2011

- Microelectronics Division, Systems and Technology Group
- Manager: Mr. Michael S. Premsagar
- Developed statistical models to improve functional yield prediction of semiconductor products

COMPUTER
SKILLS

- **OOP**: C++, Java
- **Script**: MATLAB, Python
- **Markup**: LaTeX, HTML, CSS

PROFESSIONAL
SERVICE

- **President**, ECE Graduate Student Council   04/2014-present
- University of Michigan COE Visit Day Planning Committee   2013, 2014, 2015

SELECTED
INTERESTS

- **President**, Tarana Hindi/English Co-ed a cappella, Cornell University   01/2010-05/2012
- **Treasurer**, Last Call all-male a cappella, Cornell University   08/2009-12/2011