Monir El Halaby

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EDUCATION

2003–present **Doctor of Philosophy** (expected June 2007)
Department of Electrical and Computer Engineering, University of Toronto Thesis: *Spectrally efficient modem design for indoor wireless optical channels* Supervisor: Professor Finn Ginsberry

2001–2003 **Master of Applied Science**
Department of Electrical and Computer Engineering, University of Toronto
Thesis: *Modulation and constrained coding techniques for wireless infrared communication channels*
Supervisors: Professors Dieter Kohlberg and Finn Ginsberry

1996–2001 **Bachelor of Applied Science** (first class honours)
Department of Electrical and Computer Engineering, University of Waterloo
• Sir Sandford Fleming Foundation Medal winner for Highest Academic Standing in Electrical Engineering Program

RESEARCH EXPERIENCE

2003–present **Research Assistant,** doctoral level
Department of Electrical and Computer Engineering, University of Toronto
Project: Modem design for spectrally constrained indoor wireless optical channels
Supervisor: Professor Finn Ginsberry

2001–2003 **Research Assistant,** master's level
Department of Electrical and Computer Engineering, University of Toronto
Project: Experimental channel construction and characterization and design of a novel optical intensity modulation scheme
Supervisors: Professors Dieter Kohlberg and Finn Ginsberry

January–April 2000 **Research Assistant,** VLSI Research Group
Department of Electrical and Computer Engineering, University of Waterloo
Project: Designed and laid out a parallel multiplier library in a BiCMOS process Project: Designed the digital switching portions of a segmented D-to-A converter Supervisors: Dr. A. Chang and Professor M.I. Alhambra

January–April 1998 **Research Assistant,** undergraduate research assistantship
Department of Electrical and Computer Engineering,
University of Waterloo
Project: Research into high-
voltage DC power system modelling Supervisor:
Professor B.A. Fuentes

RESEARCH INTERESTS

- Communication algorithms and implementations for wired and wireless optical channels
- Indoor and free-space wireless optical communications
- Optical modem design for wired and wireless optical channels
- Communications theory and information theory applied to optical channels

SELECTED HONOURS AND AWARDS

2006	University of Toronto Open Fellowship
2005 and 2006	Walter C. Summer Memorial Scholarship
2005	Ontario Graduate Scholarship in Science and Technology
2003–2005	NSERC Postgraduate Scholarship (doctoral level)
2001–2003	Postgraduate Scholarship (master's level), University of Toronto Graduate Entrance Top-Up Award

PUBLICATIONS

Publication in refereed journals

- El Halaby, M., and Ginsberry, F. (2006, August). Optical intensity modulated direct detection channels: Signal space and lattice codes. Forthcoming in *IEEE Transactions on Information Theory*.

Paper submitted for publication in refereed journals

- El Halaby, M., and Ginsberry, F. (2006, April). Capacity bounds for power- and band- limited optical intensity channels corrupted by gaussian noise. Submitted to *IEEE Transactions on Information Theory.*

Publications in refereed conference proceedings

- El Halaby, M., and Ginsberry, F. (2006). Capacity bounds for power- and band-limited wireless infrared channels corrupted by gaussian noise. In *Proceedings of the 41st Annual Allerton Conference on Communication., Control and Computing* (149–155). Monticello, IL: McGill-Queen's University Press.
- El Halaby, M., and Ginsberry, F. (2005). Signal constellation design for optical intensity modulated channels. In *Proceedings of the IEEE International Symposium on Information Theory* (p. 235, abstract only). Washington D.C.

TEACHING EXPERIENCE AT THE UNIVERSITY OF TORONTO

Fall 2005 and winter 2006

Discrete Mathematics ECE 190

Teaching assistant: Prepared and conducted weekly tutorials for classes of 50 students as well as marking duties.

Winter 2006

Probability and Applications ECE 302
Teaching assistant: Marked assignments for a class of 400 students.

Fall 2005

Electronics II ECE 362
Head teaching assistant responsible for laboratory project. Supervised laboratory sessions, prepared and conducted weekly tutorials for a class of 70 students as well as marking portions of the mid-term exam.

PROFESSIONAL EXPERIENCE

May–August 2000

RF Engineer (co-op), Teklogix Inc., Oakville, Ontario.
Developed the digital signal-processing portion of a novel high-baud rate, narrow-band radio modem (technical publication).

September–December 1999

Research Assistant (co-op), VTSL Group, University of Waterloo, Waterloo, Ontario.
Designed and implemented a variety of full-custom, low-power digital CMOS circuits for wireless communications.

MEMBERSHIPS

- **Student Member**, Professional Engineers Ontario (PEO).
  - **Applicant** for professional engineering licensure having written and passed the Professional Practice Exam (PPE). Engineering experience requirement of twenty-four months still outstanding for licensing.
- **Co-chair**, IEEE Communications Society Toronto Section (since August 2004).

COMMUNITY INVOLVEMENT

- **Conference Volunteer,** International Electrical Engineer Conference, 2003 and 2005.
- **Conference Assistant**, Solid-State Circuits Conference, San Francisco.
  Assisted in the publication of the visuals supplement and in visuals projection, 2003 and 2005.
- **Technical Reviewer**, Institute of Electrical and Electronic Engineers Inc.
  IEEE Journal of Solid-State Circuits
  IEEE International Symposium on Circuits and Systems
  IEEE Proceedings: Optoelectronics

REFERENCES

- Prof. Finn Ginsberry
  Tel.: 416-978-2552 E-mail: finn@comm.utoronto.ca
  Relationship: PhD thesis supervisor, M.A. Sc. co-supervisor

- Prof. Dieter Kohlberg
  Tel.: 416-978-5555 E-mail: kohlberg@eecg.utoronto.ca
  Relationship: MA Sc thesis supervisor, teaching reference

- Prof. Pas S. Rajagopal
  Tel.: 416-978-1511 E-mail: raj@comm.utoronto.ca
  Relationship: PhD thesis committee member