

# Henrik Holm, Ph.D.

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Permanent Resident of the U.S.



## Objective

To obtain a challenging position where I can contribute to research or the development of new technology

## Fields of Interest

Signal Processing. Wireless Communications/Fading Channels, Adaptive Modulation, Channel Estimation. Probability/Statistics. Applied Mathematics. Channel coding/Error correcting codes.

## Highlights

Enjoy being part of cutting edge research and new technology development. Varied education background in ultrasound technology and wireless communication. Strong presentation skills for small and large groups. Enjoy advising/training. Work well individually and as part of a team. Easily learn new skills and tasks.

## Experience

**Lecturer, Department of Electrical and Computer Engineering, University of Minnesota** *Fall 2004*

- Teaching class in Probability and Stochastic Processes.
- 40+ MS/PhD students.

**Visiting Scholar/Post Doctorate Researcher, University of Minnesota** *2002--Present*

- Research in wireless communications to develop new methods for performance assessment in cooperation with other researchers at the U of M and the Norwegian University of Science and Technology (NTNU).
- Published two papers in IEEE journals, invited speaker at CISS-2002 and at graduate level courses.

**Research Fellow/Teaching Assistant, NTNU** *1998--2002*

- Developed techniques for statistical assessment of performance of adapted coded modulation and other wireless transmission schemes.
- Managed a group of four student assistants; created assignments, created and corrected exams.
- Substituted for Professor in lecturing graduate level Information Theory class of 40+ students.

**Research Assistant, Department of Physiology and Biomedical Engineering, NTNU** *Summer 1997*

- Researched acoustic signal modeling.
- Developed test methods for understanding signal propagation in cardiac ultrasound.
- Set up, programmed and tested state-of-the-art ultrasound machine.

**Student Assistant, NTNU** *1995--1997*

- Assisted undergraduate Electrical Engineering students with their coursework.
- Created and corrected assignments.

**Electrical Technician, Borregaard Industries Limited, Norway** *Summers 1994--1996*

- Installed and diagnosed communication and electronic devices; maintained fire protection systems.

**Military Service, Norwegian Army** *1992--1993*

- Worked on battlefield communication systems; trained in winter survival and first aid.

## Education

**PhD in Electrical Engineering, Department of Telecommunications, NTNU** *1998--2002*

- Norwegian University of Science and Technology (NTNU) is the main technical university in Norway, and it is an accredited member of the European University Association (EUA).
- Spent academic year 2000--2001 at the Dept. of Electrical and Computer Engineering, University of Minnesota.
- PhD research: Evaluation techniques for a new, effective transmission method for wireless communications.
- Thesis: *Adaptive Coded Modulation Performance and Channel Estimation Tools for Flat Fading Channels.*

- MSc in Electrical Engineering, Department of Telecommunications, NTNU** 1993--1998  
 - Research: Enhancement and analysis of a new ultrasound imaging technique.  
 - Thesis: *Signal Models of Nonlinear Acoustics in Ultrasound Imaging*
- Stage Art Studies, Romerike folkehøgskole (Community College)** 1991--1992

### Skills

- Computer skills: Fluent in programming in Matlab, Linux/Unix; comfortable with C, Java, Lisp, Perl. Web design, HTML, CSS, PHP.
- Languages: Norwegian (native), English (fluent), Swedish, Danish, German and French (basics).

### Honors

- One of ten applicants to be awarded a grant from the Research Council of Norway via the project "Wideband Radio Access" and from NTNU for PhD research.
- One of two out of 16 students in the duration of the Basic Telecommunications Research program to be awarded "Best PhD Student."
- Only candidate to be awarded Post Doctorate grant among five applicants.

### Selected Publications

- **Henrik Holm** and Mohamed-Slim Alouini. "Sum and difference of two squared correlated Nakagami variates in connection with the McKay distribution." 2004. To appear in *IEEE Trans. Commun. Theory*.
- Geir Egil Øien, **Henrik Holm**, and Kjell Jørgen Hole. "Impact of imperfect channel prediction on adaptive coded modulation performance." 2004. To appear in *IEEE Trans. Veh. Technol.*
- Kjell Jørgen Hole, **Henrik Holm**, and Geir Egil Øien. "Adaptive multidimensional coded modulation over flat fading channels." *IEEE J. Select. Areas Commun.*, 18(7):1153-1158, July 2000.

Complete listing of publications is available at <http://www.henrikholm.com/publications.html>

### Volunteer Experience

- Spring 2001:** Volunteer at St. Stephen's homeless shelter, Minneapolis, MN.
- 1999--2002:** Chairman, IEEE Student Branch, Trondheim, Norway.
- 1995--1997:** Student Representative in Curriculum Committee of the Electrical Engineering and Telecommunications Faculty.
- 1995--1997:** Student representative in the Faculty Board, Norwegian University of Science and Technology.
- 1993--1994:** Managed a budget of NOK 120,000.00 (USD 17,000.00) for a student association affiliated with NTNU; improved cash balance in account while also improving inventory selection.

### References

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