# Adam R. Attarian

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## Education

Ph.D. Applied Mathematics, North Carolina State University, Spring 2011. (Expected)
Thesis Advisor: Hien T. Tran.
Thesis Topic: Applications of Nonlinear Estimation and Control (working).

M.S. Applied Mathematics, North Carolina State University, Spring 2010. (Expected) Current Graduate GPA: 3.833.

B.S. Applied Mathematics, North Carolina State University, 2007. Final Undergraduate GPA: 3.211.

B.S. Electrical Engineering, North Carolina State University, 2007.

Certificate. Documentary Studies, Duke University, 2006.

## Research Interests

- Nonlinear estimation, identification, validation, filtering, and control.
- Inverse problems: sensitivity analysis and subset selection.
- Optimization and nonlinear problems in engineering and biological models.
- Digital signal processing and communications engineering.

## Publications

R.L Ives, A. Attarian, T. Bui, M. Read, J. David, and H. Tran, "Computational Design of Asymmetric Electron Beam Devices," in *IEEE Transactions on Electron Devices*, 56(5) May 2009, pp753-761. DOI: 10.1109/TED.2009.2015421.

B. Draper, A. Attarian, M.V Evans, K. A Yokley, et al, "Feasibility of metabolic parameter estimation in pharmacokinetic models of carbon tetrachloride exposure in rats," in *Toxicological and Environmental Chemistry*, 91(3), April 2009, pp 521-546. DOI: 10.1080/02772240802214530.

R.L Ives, A. Attarian, T. Bui, H. Tran, et al, "Implementation of computer optimization for design of electron guns," in *IEEE International Conference on Infrared, Millimeter, and Terahertz Waves, 2008*, 15-19 Sept. 2008, pp1-2. DOI: 10.1109/ICIMW.2008.4665480.

M. Fink, A. Attarian, and H. Tran, "Subset selection for parameter estimation in an HIV model," in *ICIAM07 Minisymposia - 12 Bio-Mathematics,* August 2008. DOI: 10.1002/pamm.200700319.

R.L Ives, A. Attarian, T. Bui, M. Read, J. David, and H. Tran, "Computer optimized design of electron guns," in *IEEE International Vacuum Electronics Conference*, 22-24 April 2008, pp453-454. DOI: 10.1109/IVELEC.2008.4556399.

A. Attarian, J. David, H. Tran, R.L Ives, "A Parallel Optimization Approach for the Optimal Design of Traveling Wave Tubes" (under review by *IEEE Transactions on Plasma Science.*)

**Contributed Conference Talks**

"Techniques for Improved Parameter Estimation in Nonlinear Compartment Models," presented at *SIAM Annual Meeting,* Denver, July 2009.

"Design of Electron Devices using Computer Optimization", presented at the *AMS/MAA Joint Meeting,* San Diego, January, 2008 and *SIAM Meeting on Optimization,* Boston, May 2008.

"A Hybrid Optimization Approach for the Optimal Design of Traveling Wave Tubes," presented at *AMS/MAA Joint Meeting,* New Orleans, January 2007 and *SIAM Meeting on Computational Science and Engineering,* Costa Mesa, February 2007, and *NCSU Undergraduate Research Symposium,* August 2006.

"The Feasibility of Illuminant Estimation in Hyperspectral Images" presented at *NCSU ECE Undergraduate Research Symposium* and *NCSU Undergraduate Research Symposium*, August 2007.

**Additional Research Experience**

Intern — Advisor: Brian Lewis
MIT Lincoln Laboratory — 2008
*An Approach to the Estimation of Multiple Maneuvers in a Tracking Environment.* Worked to determine if, given noisy tracking data of an object and appropriate assumptions, an estimate of intentional maneuvers can be obtained.

Research Assistant — Advisor: H.J. Trussell
NC State University — 2006–2007
*The Feasibility of Illuminant Estimation in Hyperspectral Images.* Worked to ascertain the amount of known reflectances needed to accurately reconstruct a non-spatially varying illuminant from hyperspectral sensor data.

Research Assistant — Advisor: H. Krim
NC State University — 2006
*Real Time 3D Facial Detection and Extraction Systems.* Worked in a senior design team to build a MATLAB software package to isolate and extract personal facial features using $\mathbf{R}^3$ data in real time.

**Teaching Experience**

Teaching Assistant, E101: Introduction to Engineering, N.C. State University, 2004–2007.

Instructor, Space Grant Educator Workshop, N.C. State University, 2005–2007.

Teaching Fellow, NCSU Ramp-Up Project, 2004–2005.

**Awards & Honors**

The poster for "A Hybrid Optimization Approach for the Optimal Design of Traveling Wave Tubes" won Best Undergraduate Research Poster at the AMS/MAA Joint Meeting New Orleans, 2007.

The research entitled "The Feasibility of Illuminant Estimation in Hyperspectral Images" won best research at the 2007 NCSU Undergraduate Research Symposium and won best poster at the 2007 ECE Undergraduate Research Presentations.

Undergraduate Research Awards, 2005 and 2006, from N. C. State University.

Awarded the Physical and Mathematical Science Senior Leadership Award in May 2007.

Achieved the Deans List ($\geq$ 3.5 GPA) for the last five undergraduate semesters.

**Computer Skills**

Excellent Proficiency: MATLAB, LaTeX, UNIX Systems

Basic Proficiency: C, Java.