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Education

Ph.D. Applied Mathematics, North Carolina State University, 2010. (Expected)

M.S. Applied Mathematics, North Carolina State University, 2008. (Expected) Current Graduate GPA: 3.750.

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

- Inverse problems, sensitivity analyses, and feasibility of parameter estimation of engineering and biological models.
- Unconstrained optimization and nonlinear problems with respect to engineering and biological models.
- Computer design of electron devices; model coupling and integration.
- Digital Signal Processing and Communications Engineering. Working with hyperspectral data for image processing and target detection under uncertainty.

Research Experience

Research Assistant 2007
Hien Tran & Karen Yokley N.C. State University & U.S. Environmental
Protection Agency
Feasibility of Metabolic Parameter Estimation in Pharmacokinetic Models of CCl_4 exposure in rats. Developed a pharmacokinetic model and worked extensively with sensitivity analyses, parameter estimation, subset selection, and construction of the inverse problem.

Research Assistant 2006–Present
Hien Tran N.C. State University
Design of Electron Devices using Computer Optimization. Investigation of shape design of electron devices through numerical optimization using parametric modeling software and electrodynamic solvers.

Research Assistant 2006–2007
H.J. Trussell N.C. State University
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 2006
H. Krim N.C. State University
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.

Research Assistant
Hien Tran

2006

N.C. State University

A Hybrid Optimization Approach for the Optimal Design of Traveling Wave Tubes. 2006 NCSU Research Experience for Undergraduates: Modeling and Industrial Applied Mathematics. Worked on the shape design and optimal construction of electron guns and collectors.

Teaching Experience

Teaching Assistant, 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.

Working & Published Papers

“A Hybrid Optimization Approach for the Optimal Design of Traveling Wave Tubes,” with J. David, H. T. Tran, T. Bui, R. Ives, and C. Cory (2007).

“Subset Selection for Parameter Estimation in an HIV Model” with M. Fink, H. T. Tran. Published in Proceedings in Applied Mathematics and Mechanics (2007).

“Design of Electron Devices using Computer Optimization,” with H. T. Tran, R. Ives, and T. Bui. (2007).

“Feasibility of Metabolic Parameter Estimation in Pharmacokinetic Models of Carbon Tetrachloride Exposure in Rats,” with B. Draper, D. Marcin, A. Margolskee, R. Murden, M. V. Evans, and K. A. Yokley. Journal of Pharmacokinetics and Pharmacodynamics, submitted.

Presentations

“A Hybrid Optimization Approach for the Optimal Design of Traveling Wave Tubes,” presented at the AMS/MAA Joint Meeting in New Orleans, January 2007 and SIAM Meeting on Computational Science and Engineering in Costa Mesa, 2007 as well as the NCSU Undergraduate Research Symposium.

“The Feasibility of Illuminant Estimation in Hyperspectral Images” was presented at both the ECE Undergraduate Research Symposium as well as the NCSU Undergraduate Research Symposium.

“Design of Electron Devices using Computer Optimization” will be presented at the 2008 AMS/MAA Joint Meeting in San Diego, CA, as well as the SIAM Meeting on Optimization in Boston, MA.

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 PAMS (Physical and Mathematical Science) Senior Leadership Award in May 2007.

Achieved the Deans List (≥ 3.5 GPA) for the last five undergraduate semesters.

Computer Skills

Excellent Proficiency: MATLAB, L^AT_EX, UNIX Systems

Basic Proficiency: C, Java.

Professional Memberships

Member of IEEE and SIAM.

Extracurricular Interests

Photography and Documentary Studies

Social Discourse