Curriculum Vitae

Douglas Robert Hundley

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EDUCATION

Ph.D. Applied Mathematics, Colorado State University, August 1998.
Dissertation: *Local Nonlinear Modeling of Dynamical Systems via Neural Charts.*
Adviser: Michael J. Kirby.

M.S. Mathematics, Western Washington University, Bellingham, WA. 1991.

B.S. Mathematics (Minors: Russian Language, Biological Psychology)
Western Washington University, Bellingham, WA. 1989.

A.A.S. General Studies, Whatcom Community College, Bellingham, WA. 1987.

ADDITIONAL EDUCATION

Dynamical Systems	Dynamical Systems Institute Boston University, Summer 1992.
General Studies	Everett Community College, Everett, WA. 1986.
U.S. Army	Russian Language Studies Defense Language Institute, Foreign Language Center, 1981-82

HONORS AND AWARDS

- President, Sigma Xi (Whitman College/Walla Walla College Chapter), 2003-Present.
- Secretary, Sigma Xi (Whitman College/Walla Walla College Chapter), 2002-2003.
- Project NExT Fellow (MAA and Exxon), 1999-2000
- Ph.D. Dissertation Fellowship Award,[1] Colorado State University (1997-98).
- Member of Sigma Xi, Colorado State University Chapter (1997).
- Nominated for Outstanding Graduate Teaching Assistant, College of Natural Sciences, Colorado State University (1996-1997).

[1] A competitive University-wide cash award based on research potential and teaching

- Voted Outstanding Graduate in Mathematics (Western Washington University, Bellingham, WA, 1989).
- Graduated Magna Cum Laude (B.S., Western Washington University, Bellingham, WA, 1989).
- Nominated for the Laidlaw Award[2] (Whatcom Community College, Bellingham, WA, 1987).
- Received the Martin Luther King, Jr. Essay award[3] (Whatcom Community College, Bellingham, WA, 1987).

PUBLICATIONS

- "Classification of Time-Embedded EEG Using Short-Time Principal Component Analysis", C. Anderson, M. Kirby, D. Hundley and J. Knight. In *Towards Brain-Computer Interfacing*, edited by G. Dornhege, J. del R. Millan, T. Hinterberger, D.J. McFarland and K.-R. Muller, MIT Press, p 261-278, 2007.
- "Estimation of Topological Dimension", D. Hundley and M. Kirby, In *Proceedings of the Third SIAM International Conference on Data Mining.* D. Barbara and C. Kamath (Editors), pp 194-202, 2003.
- "The Bilipschitz Criterion for Dimension Reduction Mapping Design", M. Anderle, D. Hundley, and M. Kirby. Intelligent Data Analysis, v 6, n 1, p 85-104, 2002.
- "A Solution Procedure for Blind Source Separation Using the Maximum Signal Fraction Approach", D. Hundley, M. Anderle, and M. Kirby. Signal Processing, v 82, n 10, p 1505-1508, 2002.
- "A Solution Procedure for Blind Signal Separation Using the Maximum Noise Fraction Approach: Algorithms and Examples", D. Hundley, M Anderle, and M. Kirby. In *Proceedings of the Conference on Independent Components Analysis*, San Diego, CA, p 337-342, 2001.
- "Time series prediction by estimating Markov probabilities through topology preserving maps", G. Dangelmayr, S. Gadaleta, D. Hundley and M. Kirby. Proc. SPIE Vol. 3812, Applications and Science of Neural Networks, Fuzzy Systems, and Evolutionary Computation II. Edited by B. Bosacchi, D. B. Fogel and J.C. Bezdek. pgs 86-93, 1999.
- "Empirical Dynamical Systems Reduction II: Neural Charts", D. Hundley and M. Kirby. In *Semi-analytic methods for the Navier-Stokes Equations*, Edited by K. Coughlin, p. 65-83, 1999.
- "Spherical Nodes in Neural Networks", D. Hundley, M. Kirby and R. Miranda. In *Intelligent Engineering Systems through Artificial Neural Networks*, C. H. Dagli, et. al., Eds, 1995, ASME Press.
- "Fractal Image Compression: An application of the science of fractal images". D. Chalice and D. Hundley. In *Festschrift in Honor of Vladimir Milicic*, R. Weiss and T. Schlotterback, Eds., 1995, Western Washington University.
- "The Creation of Chaos", D. Hundley. In *Chaos and Chaos Theory: Nonexistent Objects*, V. Milicic, Ed., 1993, Western Washington University.

[2]This is a College-wide award given to the outstanding graduate of the school. Nominations are from faculty members.

[3]This is a single monetary award from the college for an essay involving issues dealing with civil rights

Appointments

- Fall 2004-Present: Associate Professor of Mathematics, Whitman College.
- Fall 2008-Spring 2011: Chair, Department of Mathematics, Whitman College.
- Fall 1998-Fall 2004: Assistant Professor of Mathematics, Whitman College, Walla Walla, WA.
- Summer, 2003: Consultant, Colorado State University, Brain to Computer Interface Project.
- Spring/Summer 2001: Visiting Professor, Colorado State University, Fort Collins, CO.
- July, 2001: Faculty Consultant, ETS Advanced Placement, Calculus.
- Aug 1995-May 1998: Research Assistant, Colorado State University, Fort Collins, CO.
- Aug 1993-Aug 1995: Graduate Teaching Assistant, Colorado State University, Fort Collins, CO.
- Jan 1991-Jun 1991: Graduate Teaching Assistant, Western Washington University, Bellingham, WA.

LECTURES, WORKSHOPS and CONFERENCES

- Participant, Cross Disciplinary Learning and Teaching Initiative in Brain, Behavior and Mind. Whitman College, Summer 2011.
- Participant, Short Course in Statistics and Data Mining, Joint Mathematics Meeting, Washington D.C., January 2009.
- "Mind Reading: Classification of EEG by Mental Task", Faculty Forum, Whitman College, February 21, 2007.
- "Numerical Methods for Analysis of EEG", PNWMAA Meeting, Ashland, OR, June 2006.
- "Estimating Intrinsic Dimension", PNWMAA Meeting, Whitman College, June 2003.
- Local Program Chair, Project NExT, PNWMAA Meeting, Whitman College, June 2003.
- "Estimation of Topological Dimension", Third SIAM International Conference on Data Mining, San Francisco, CA, May 1-3, 2003.
- Organizer, Session for Project NExT, Pacific NW Regional Conference of the MAA, Portland State University, June 2002.
- Participant in Statistics Workshop, Whitman College, Summer 2002.
- Participant in Rockefeller Workshop on Qualitative Literacy, Whitman College, Summer 2002.
- "Geometric Data Analysis", Colloquium talk, Central Washington University, April 2002.
- "Problems from Geometric Data Analysis", Colloquium talk, Western Washington University, March, 2002.
- "From Eigenfaces to the Messiah", National Meeting of the MAA/AMS, San Diego, CA, January 2002.

- "Signal Separation", Faculty Forum, Whitman College, Fall 2001.
- "Principle Components, Independent Components and Noise", SIAM Dynamical Systems Conference, Snowbird, UT, May 2001.
- Co-organizer and speaker, Seminar on Independent Components Analysis, Colorado State University, Spring 2001.
- "Dimensionality Reduction", PNW Regional Conference of the MAA, Seattle Pacific University, Spring 2001.
- Undergraduate Session Chair, PNW Regional Conference of the MAA, Seattle Pacific University, Spring 2001.
- Participant of Project NExT, MathFest 2000, UCLA, June 2000.
- "Pattern Analysis and Neural Networks", National Meeting of the MAA/AMS, Washington, D.C., January, 2000.
- Participant of Project NExT, MathFest 1999, Brown University, Rhode Island, August, 1999.
- "Neural Networks", Whitman College, Fall 1998.
- Organizer, Graduate Student Seminar, Colorado State University. 1997-98.
- "Iterated Function Systems: Theory and Application." Grad. Student Seminar, Oct. 1997.
- "Neural Networks in Control Theory (How to Train a Neural Network to Back up a Trailer)", Mathematics Association of America Regional Conference, Denver, April 11-12, 1997.
- "Neural Charts Algorithm", Workshop on Symmetry Methods in Dynamical Systems, University of Tübingen, Germany, March 1997.
- "Spatio-Temporal Clustering of Attracting Sets of Dynamical Systems." Applied Math Seminar, CSU, February 1997.
- "Reconstruction and Remodeling of Dynamical Systems via Neural Networks." Applied Math Seminar, CSU, September 1996.
- "Neural Networks: An introduction." Colloquium talk, Western Washington University, Bellingham, WA. January 1996.
- "Spherical Nodes in Neural Networks." ANNIE[4] '95, St. Louis, MO, November 1995.
- "Empirical Data Reduction and Reconstruction: Neural Charts." PDE Workshop, University of Montreal, Montreal, Canada. October 1995.
- "Fractal Image Compression." Applied Math Seminar, CSU, Fall 1995.
- "Spherical Nodes in Neural Networks." Applied Math Seminar, CSU, Spring 1995.
- "Complex Dynamical Systems: A slide show." Applied Math Seminar, CSU, Fall 1993.

PROFESSIONAL MEMBERSHIPS

Member of Mathematical Association of America (MAA), American Statistical Society (ASA), Project NExT (MAA), Society for Industral and Applied Mathematics (SIAM), and I am currently the local chapter president of Sigma Xi, the Research Society.

[4] Artificial Neural Networks in Intelligent Engineering