

Curriculum Vita

(Spring 2012)

Thomas Preston Caudell

EDUCATION:

- 1980 Ph.D., Physics University of Arizona, Tucson, AZ.
- 1978 M.S., Physics University of Arizona, Tucson, AZ.
- 1973 B.S., Physics, (Honors) Cal State University, Pomona, CA.
- 1973 B.S., Mathematics Cal State University, Pomona, CA.

EXPERIENCE:

- July 2006-present: Professor, Dept. of ECE, University of New Mexico.
- Sept 2009-present: Professor, secondary appointment, Dept. of Psychology, University of New Mexico
- Jan 2001-present: Associate Professor, secondary appointment, Computer Science Department, University of New Mexico.
- Sept 2009-Sept 2010: Computer Engineering Area Chair, ECE Department, Univ. of New Mexico.
- Feb 2007-June 2009: Director, UNM Center for High Performance Computing.
- Aug 2005-Jan 2007: Computer Engineering Area Chair, ECE Department, Univ. of New Mexico.
- Jan 1994-July 2006: Associate Professor, ECE Department, University of New Mexico, Tenured July 1998.
- Aug 1993-Dec 1993: Visiting Research Associate Professor, Dept. of ECE, University of New Mexico.
- 1991-1995: Affiliate Associate Professor, Department of Electrical Engineering at University of Washington, Seattle, WA.
- 1989-1993: Senior Principal Scientist, Research and Technology, Boeing Computer Services, Bellevue, WA.
- 1984-1989: Senior Staff Physicist, Hughes Artificial Intelligence Center, Hughes Research Laboratories, Malibu, CA.
- 1988-1989: Instructor for the University of California Los Angeles, Engineering Extension.
- 1981-1984: Research Assistant Professor, Department of Physics and Arizona Research Laboratories, University of Arizona, Tucson, AZ.
- 1980-1981: Postdoctoral Research Associate, Department of Physics, University of Arizona, Tucson, AZ.
- 1974-1980: Research and Teaching Assistantships, Department of Physics, University of Arizona, Tucson, AZ.

PROFESSIONAL SOCIETIES:

International Neural Network Society

AREAS OF TEACHING EXPERIENCE:

Neural networks

Virtual reality
Data structures and algorithms
Computer graphics
Pattern recognition
Computer vision
Parallel processing
Computer games

AREAS OF RESEARCH EXPERIENCE:

Neural networks
Computational Neurobiology
Cognitive Systems
Computer graphics
Virtual reality
High performance computing

AWARDS AND HONORS:

Best Book in 'Basis of Medicine' Category, British Medical Association (2009)
Sigma Pi Sigma, the Physics Honor Society (1973-present)
Hughes Research Laboratories, Technical Team Honors (1986)
Boeing Computer Services, Special Honors Program (1991)
Boeing Computer Services, Technical Excellence Award (1993)
Boeing Commercial Aircraft Pi Quality Award (1993)
UNM Library, Faculty Acknowledgment for Outstanding Work (Aug. 1994)

PUBLICATIONS: (* denotes a current or former student)

Refereed Journals.

1. He H*, Caudell TP, Menicucci DF, and Mammoli AA, "Application of adaptive resonance theory neural networks to monitor solar hot water systems and detect existing or developing faults", Solar Energy (in press 2012).
2. Vineyard* CM, Verzi SJ, Bernard ML, Taylor* SE, Dubicka I, and Caudell TP, "Associative-ART: A Multi-modal Network Architecture for Knowledge Discovery", Journal of Security Informatics (in press 2012).
3. Lee CH, Liu, A and Caudell, TP, "A study of locomotion paradigms for immersive medical simulation environments." The Visual Computer, Vol. 25, No. 11, pages 1009-1018 (2009).
4. Healy MJ, Olinger* RD, Young* RJ, Taylor* SE, Caudell TP, and Larson KW, "Applying Category Theory to Improve the Performance of a Neural Architecture," Neurocomputing, vol. 72, pp. 3158-3173 (2009).
5. Vergara* VM, Caudell TP, Goldsmith T, Panaiotis, Alverson D "Knowledge-driven design of virtual patient simulations", Innovate Journal of Online Education, V. 5, Issue 2, <http://innovateonline.info/index.php?view=article&id=579&action=synopsis> (Dec 2008)

6. Alverson DC, Saiki SM Jr, Kalishman S, Lindberg M, Mennin S, Mines J, Serna L, Summers* K, Jacobs J, Lozanoff S, Lozanoff B, Saland L, Mitchell S, Umland B, Greene G, Buchanan HS, Keep M, Wilks D, Wax DS, Coulter R, Goldsmith TE, Caudell TP. Medical Students Learn Over Distance Using Virtual Reality Simulation. *Sim Healthcare*, 3:10-15(2008).
7. Healy MJ and Caudell TP, "Ontologies and Worlds in Category Theory: Implications for Neural Systems", *Axiomathes V. 16*, pp. 165–214 (Jan 2006).
8. Miner* NE, Vergara* VE, Panaiotis, Caudell TP, "Authors' Comments on Miner and Caudell, ICAD 1997" plus reprint of "Using Wavelets to Synthesize Stochastic-based Sounds for Immersive Virtual Environments" in celebration of the tenth anniversary of ICAD, in *ACM Transaction on Applied Perception*, (Fall 2005).
9. Alverson, D.C., Saiki Jr, S.M., Caudell, T.P., Summers*, K.L., Panaiotis, Sherstyuk, A., Nickles, D., Holten*, J., Goldsmith, T., Stevens*, S, Mennin, S., Kalishman, S., Mines, J., Serna, L., Mitchell, S., Lindberg, M., Jacobs, J., Nakatsu, C., Lozanoff, S., Wax, D.S., Saland, L., Norenberg, J., Shuster, G., Keep, M., Baker, R., Stewart, R., Kihmm, K., Bowyer, M., Liu, A., Muniz, G., Coulter, R., Maris, C., Wilks, D., "Distributed Immersive Virtual Reality Simulation Development for Medical Education", *Journal of the Association of International Medical Science Educators*, V. 15, pp. 19-30 (2005).
10. Summers*, K.L., Caudell, T.P., Berkbigler, K., Bush, B., Davis, K., and Smith, S.A., "Visualization for the Analysis of the Structure and Dynamics of Extreme-Scale Supercomputer Architectures", *Journal of Information Visualization*, Palgrave Macmillan, V. 3 No. 3, pp. 209-221 (2004).
11. Caudell, T. P., Xiao*, Y., and Healy, M.J., "eLoom and Flatland: specification, simulation, and visualization engines for the study of arbitrary hierarchical neural architectures", *Neural Networks*, V. 16, Nos. 5-6, pp. 617-624 (July 2003).
12. Jacobs, J., Caudell, T.P., Wilks, D., Keep, M.F., Mitchell, S., Buchanan, H., Saland, L., Rosenheimer, J., Lozanoff, B.K., Lozanoff, S., Saiki, S, Alverson, A., "Integration of Advanced Technologies to Enhance Problem-Based Learning Over Distance: Project TOUCH", *The Anatomical Record (Part B: New Anat.) V. 270B*, pp. 16-22 (Jan 2003).
13. Caudell, T.P, Summers*, K.L., Holten*, J., Hakamata*, T. Mowafi*, M., Jacobs, J., Lozanoff, B.K., Lozanoff, S., Wilks, D., Keep, M.F., S., Saiki, S, Alverson, A., "Virtual Patient Simulator for Distributed Collaborative Medical Education", *The Anatomical Record (Part B: New Anat.) V. 270B*, pp. 23-29 (Jan., 2003).
14. Miner*, N. E. and Caudell, T. P., "A Wavelet Synthesis Technique for Creating Realistic Virtual Environment Sounds ", *Presence: Teleoperators and Virtual Environments*, V11 No. 5, pp. 493-507 (Oct., 2002).
15. Miner*, N. E., Goldsmith, T., and Caudell, T. P., "Perceptual Validation Experiments for Evaluating the Quality of Wavelet-Synthesized Sounds", *Presence: Teleoperators and Virtual Environments*, V 11, No. 5, pp. 508-524 (Oct., 2002).
16. Miner*, N. E. and Caudell, T. P., "Computational Requirements and Synchronization Issues for Virtual Acoustic Displays", *Presence: Teleoperators and Virtual Environments*. 7(4): 396-409 (Nov., 1998).

17. Healy, M. J. and Caudell, T. P., "Guaranteed Two Pass Convergence for Supervised and Inferential Learning", IEEE Trans. on Neural Networks (Jan., 1998).
18. Smith, S. D. G., Escobedo, R., Anderson, M. and Caudell, T. P., "A Deployed Neural Engineering Design Retrieval Systems", IEEE Trans. on Neural Networks Vol. 8, No. 4, pp. 847-851 (July, 1997).
19. Arabshahi, P., Marks II, R. J., Oh, S., Caudell, T. P., and Choi, J. J., "Pointer Adaptation and Pruning of Min-Max Fuzzy Inference and Estimation", accepted IEEE Transactions on Circuits and Systems II, Analog and Digital Signal Processing, Vol. 44, No. 9, pp. 696-709, (Sept., 1997).
20. Healy, M. J. and Caudell, T. P., "Acquiring Rule Sets as a Product of Learning in the Logical Neural Architecture LAPART", IEEE Transactions on Neural Networks Vol. 8, No. 3, pp. 461-474 (May, 1997).
21. Arabshahi, P., Choi, J. J., Marks II, R. J., and Caudell, T. P., "Fuzzy Parameter Adaptation in Optimization: Some Neural Network Training Examples", IEEE Computational Science and Engineering, pp. 57-65 (Spring, 1996). (Invited)
22. Caudell, T. P., "A Virtual Environment Interface to Complex Autonomous Perceptual Systems", International Journal of Virtual Reality, Vol. 1, No. 1, pp. 9-22 (1995).
23. Caudell, T. P., Smith, S. D. G., Escobedo, R., and Anderson, M. A., "NIRS- An Industrial Strength Neural Information Retrieval System", Neural Networks Vol. 7, No. 9, pp. 1339-1350 (1994). (Invited)
24. Wunsch, D. C., Caudell, T. P., Capps, D., Marks II, R. J., and Falk, R. A., "An Optoelectronic Implementation of an Adaptive Resonance Neural Network", IEEE Transactions on Neural Networks, Vol. 4, No. 4, pp. 673-684 (July, 1993).
25. Wunsch, D. C., Morris, D. J., McGann, R. L., and Caudell, T. P., "Photorefractive Adaptive Resonance Neural Network", Applied Optics, Vol. 32, No. 8, pp. 1399-1407 (Mar. ,1993).
26. Escobedo, R., Smith, S. D. G., and Caudell, T. P., "A Neural Information Retrieval System", Special Issue on Neural Networks in Manufacturing of the International Journal of Advanced Manufacturing Technology (April, 1993).
27. Healy, M. J., Caudell, T. P., and Smith S. D. G., "A Neural Architecture for Pattern Sequence Verification Through Inferencing", IEEE Transactions on Neural Networks, Vol. 4, No. 1, pp. 9-20 (Jan., 1993).
28. Caudell, T. P., "A Hybrid Optoelectronic ART-1 Neural Processor", Applied Optics, Vol. 31, No. 29, pp. 6220-6229 (Oct., 1992).
29. Wunsch, D. C., Marks, R., Capps, D., and Caudell, T. P., "Performance SNR of Binary Phase Only Filters for Image Processing", Applied Optics, Vol. 31, No. 26, pp. 5681-5687 (Sept., 1992).
30. Caudell, K. A., Vredevoe, D. L., Dietrich, M. F., Caudell, T. P., Hoban, M. J., and Block, J. B., "Quantification of Urinary Mutagens in Nurses During Potential Antineoplastic Agent Exposure: A Pilot Study with Concurrent Environmental and Dietary Control", Cancer Nursing, Vol. 11, No. 1, pp. 41-50 (1988).

31. Hill, H. A. and Caudell, T. P., "Confirmation of the Detection and Classification of Low-Order, Low-Degree Solar Acoustic Modes with the 1978 Solar Diameter Observations", *Astrophysical Journal*, Vol. 299, p. 517 (1985).
32. Azancot, A., Caudell, T. P., Allen, H., Toscani, Derux, Lamberti, Sahn, D., Goldgerg, S., "Echocardiographic Ventricular Shape Analysis in Congenital Heart Disease with Right Ventricular Volume and/or Pressure Overload", *American Journal of Cardiology* (Oct., 1985).
33. Azancot, A., Caudell, T. P., Allen, H., Horowitz, S., Sahn, D., Stoll, C., Thies, C., Valdes-Cruz, L., and Goldberg, S., "Echocardiographic Ventricular Shape Analysis I. Normal Fetuses, Newborns, and Infants", *Circulation* (Dec., 1983).
34. Caudell, T. P. and Hill, H. A., "On the Statistical Significance of the Phase Coherence of the Reported Solar Oscillations", *Monthly Notices Royal Astronomical Society* Vol. 193, p 381 (1980).
35. Hill, H. A. and Caudell, T. P., "Global Oscillations of the Sun: Observed as Oscillations in the Apparent Solar Limb Darkening Function", *Monthly Notices Royal Astronomical Society* Vol. 186, p. 327 (1979).
36. Caudell, T. P., Smolka, F. M., Eisenstein, D., and Eisenstein, B., "The Use of Room Temperature Vulcanizing Silicone Rubber in the Eye", *Applied Optics* Vol. 18, p. 1305 (1979).
37. Smolka, F. M. and Caudell, T. P., "Surface Profile Measurement and Angular Deflection Monitoring Using a Scanning Laser Beam: a Non-Contact Method", *Applied Optics* Vol 18, p. 1305 (1979).
38. Hill, H. A., Rosenwald, R., and Caudell, T. P., "Solar Oscillations: The Influence of the Sun's Outer Layers on Their Detection", *Astrophysical Journal* Vol. 225, p 304 (1978).
39. Hill, H. A., Livingston, W., and Caudell, T. P., "Empirical Sensitivity of the Solar CI5380 Line to Temperature Changes in Static and Oscillating Systems", *Astrophysical Journal (Letters)* Vol. 214, L137 (1977).
40. Hill, H. A., Caudell, T. P., and Rosenwald, R., "On the Use of Spectral Lines as a Temperature Indicator in Pulsating Systems", *Astrophysical Journal (Letters)*, Vol. 213, L81 (1977).
41. Hill, H. A., Ballard, P., Figoski, J., and Caudell, T. P., "A Shearing Interferometer as an Interferometric Filter for the Reduction of Scattered Light", *Applied Optics*, Vol. 16, p. 195 (1977).

Conference Papers, Abstracts, and Posters.

1. Low-cost solar micro-forecasts for PV smoothing by Andrea Mammoli, Anthony Menicucci, Thomas Caudell, Abraham Ellis, Steve Willard, John Simmins, 2013 1st IEEE Conference on Technologies for Sustainability (SusTech).(Aug 2013)
2. Craig M. Vineyard¹, Stephen J. Verzi¹, Thomas P. Caudell², Michael L. Bernard¹, and James B. Aimone¹, "Adult Neurogenesis: Implications on Human And Computational

Decision Making" , 15th International Conference on Human-Computer Interaction, Las Vegas (21-26 July 2013).

3. Taylor SE, Healy MJ, and Caudell TP, "An Autonomous Distal Reward Learning Architecture for Embodied Agents", Invited paper and talk for the International Neural Networks Society Winter Conference, Bangkok, Thailand(3-5 Oct. 2012).
4. Caudell TP and Gilfeather F, "Pre-incident Analysis using Faceted Ontologies", summary National Geospatial-Intelligence Agency (NGA) Academic Research Program (NARP) Symposium and Workshops (invitation only), Washington, D.C. (Aug 2011).
5. Hongbo He, David Menicucci, Thomas Caudell, Andrea Mammoli, Real-time fault detection system using ART-based neural network for a solar hot water system, Proceedings of ASME 2011 5th International Conference on Energy Sustainability & 9th Fuel Cell Science, Engineering and Technology Conference, Washington DC, August 7-10, 2011, ESFuelCell2011-54885.
6. Vineyard, C.M., Verzi, S.J., Bernard, M.L., Caudell, T.P. (2011) A Multimodal Hypertensor Architecture for Association Formation. In A.V. Samsonovich, K. R. Johannsdottir (Eds.), *Biologically Inspired Cognitive Architectures 2011* (pp. 419-424). Amsterdam, Netherlands: IOS Press BV.
7. Caudell TP, Burch CT, Zengin* M, Gauntt* N, and Healy MJ, "Retrospective Learning of Spatial Invariants During Object Classification by Embodied Autonomous Neural Agents", International Joint Conference on Neural Networks, San Jose, CA. pp 2135-2142, (July 2011).
8. Vineyard* CM, Bernard ML, Shaneyfelt WL, Dubicka I, McClain JT, Taylor* SE, Caudell TP, Verzi SJ, "A Neurophysiologically Inspired Hippocampus Based Associative-ARTMAP Artificial Neural Network Architecture", International Joint Conference on Neural Networks, San Jose, CA. pp 2100-2105, (July 2011).
9. Craig M. Vineyard, Michael L. Bernard, Wendy L. Shaneyfelt, Irene Dubicka, Jonathan T. McClain, Shawn E. Taylor, Thomas P. Caudell, and Stephen J. Verzi, "A Hippocampus Based Associative-ART-MAP Neural Network Framework", Poster at Grand Challenges in Neural Computation II, Synthetic Cognition and Neuromimetic Processing, (Feb, 2011).
10. Vineyard, C. M., Bernard, M. L., Taylor, S. E., Caudell, T. P., Watson P., Verzi, S., Cohen, N. J., Eichenbaum, H. (2010). A Neurologically Plausible Artificial Neural Network Computational Architecture of Episodic Memory and Recall. In A.V. Samsonovich, K. R. Johannsdottir, A Chella, & B. Goertzel (Eds.), *Biologically Inspired Cognitive Architectures* (pp. 175-180). Amsterdam, Netherlands: IOS Press BV.
11. Vineyard, C. M., Bernard, M. L., Taylor, S. E., Caudell, T. P., Watson, P., Verzi, S. J., Cohen, N. J., & Eichenbaum, H. (2010). A neurologically plausible artificial neural network computational architecture of episodic memory and recall. *First International Conference on Biologically Inspired Cognitive Architectures*. Abstract in *International Journal of Machine Consciousness*, 2 (2), 382.

12. Haines, K. G. and Caudell, T.P. “An OpenCL GPU based Computer Simulation of an Artificial Neural Network Modeling the Lamina Ganglionaris of *Musca Domestica*”, NVISION GPU Technical Conference, San Jose, CA (Sept, 2010).
13. Vineyard C, Taylor S, Bernard M, Verzi S, Heileman G, Caudell TP, Watson P, “A Cortical-Hippocampal Neural Architecture for Episodic Memory with Information Theoretic Model Analysis”, The 14th World Multi-Conference on Systemics, Cybernetics and Informatics: WMSCI 2010, V2, pp. 281-285(June 29 – July 2, 2010).
14. Phillips HE, Alverson DC, Caudell TP, Panaiotis, Vergara VM, Caudell KA, Spisla JA, LaPointe DK. “Connection with Students: The Usability of Virtual Nephron Simulation as a Tool for Medical Education”. Medical Library Association Annual Meeting. Washington, DC; May 24, 2010.
15. Taylor* S.E., Vineyard* C.M., Healy M.J., Caudell T.P., Cohen N.J., Watson* P., Eichenbaum H., Verzi S.J., Morrow J.D., and Bernard M.L., “Memory in Silico: Building a Neuromimetic Episodic Cognitive Model”, 2009 World Congress on Computer Science and Information Engineering, Los Angeles, Vol. 5, pp. 733-737 (March 31 - April 2, 2009).
16. Vineyard* C.M., Taylor* S.E., Bernard M.L., Verzi S.J., Morrow J.D., Watson* P., Eichenbaum H., Healy M.J., Caudell T.P., and Cohen N.J., “Episodic Memory Modeled by an Integrated Cortical-Hippocampal Neural Architecture”, Human Behavior-Computational Intelligence Modeling Conference, Oak Ridge National Laboratory, Oak Ridge, Tennessee, (June 23-24, 2009).
17. Taylor* S.E., Bernard M.L., Verzi S.J., Morrow J.D., Vineyard* C.M., Healy M.J. and Caudell T.P., “Temporal Semantics: An Adaptive Resonance Theory Approach”, Proceedings of International Joint Conference on Neural Networks, Atlanta, Georgia, USA, pp 3111-3117 (June 14-19, 2009).
18. Perez-Arriaga* M.O. and Caudell T.P., “A Study of Brain Structure Evolution in Simple Embodied Neural Agents using Genetic Algorithms and Category Theory”, Proceedings of International Joint Conference on Neural Networks, Atlanta, Georgia, USA, pp 2494-2500 (June 14-19, 2009).
19. Healy, M.J., and Caudell, T.P., “Temporal Semantics: An Extended Definition for Neural Morphisms”, Proceedings of International Joint Conference on Neural Networks, Atlanta, Georgia, USA, pp 1184-1191 (June 14-19, 2009).
20. Victor M. Vergara, Shan Xia, Frank Gilfeather, Thomas P. Caudell. “Information fusion across expert groups with dependent and independent components”. Multisensor, Multisource Information Fusion: Architectures, Algorithms, and Applications 2009. SPIE Symposium on Defense, Security + Sensing. Orlando, FL. 13-17 April 2009
21. Pierce J, Gutiérrez F, Vergara* VM, Alverson DC, Qualls C, Saland L, Goldsmith T, Caudell TP, “Comparative Usability Studies of Full vs. Partial Immersive Virtual Reality Simulation for Medical Education and Training”, Studies in Health Technology & Informatics, 132:372–377(2008).
22. P. D. Hough, H. R. Ammerlahn, T. P. Caudell, K. Dunphy-Guzman, F. Gilfeather, M. F. Hawley, Z. Heath, V. Vergara, C. L. Yang, “Investment Planning and Analysis for

CBRN". Chemical and Biological Defense Physical Science and Technology Conference, New Orleans, 17-21 Nov. 2008.

23. Panaiotis, Vergara* VM, Sherstyuk A, Kihmm K, Saiki SM Jr, Alverson DC, Caudell TP, "An Educational Virtual Reality Simulation Transformed into a Work of Fine Art", *Studies in Health Technology & Informatics*, 132:348-350(2008).
24. R.J. Young*, Mike Ritthaler, Peter Zimmer, John McGraw, Michael J. Healy, and Thomas P. Caudell, "Comparison of Adaptive Resonance Theory Neural Networks for Astronomical Region of Interest Detection and Noise Characterization ", INNS/IEEE International Joint Conference on Neural Networks, Orlando, FL pp. 1541-1548 (Aug. 2007).
25. Andrei Sherstyuk, Dale Vincent, Jack Jin Hwa Lui, Kathleen Kihmm Connolly, Kin Lik Wang, Stanley M Saiki, Thomas P. Caudell, "Design and Development of a Pose-Based Command Language for Triage Training in Virtual Reality", *IEEE Symposium on 3D User Interfaces* Charlotte, North Carolina, USA, March 10-14, 2007.
26. D.B. Weaver*, Michael J. Healy and Thomas P. Caudell, "An Application of Category-Theoretic Design Methods to the Control of a Simulated Robot ", INNS/IEEE International Joint Conference on Neural Networks, Orlando, FL pp. 1527-1534 (Aug 2007).
27. S.E. Taylor*, Michael J. Healy and Thomas P. Caudell, "Categorical Mapping from Ontology to Neural Network: Initial Studies of Simple Neural Networks' Concept Capacity", INNS/IEEE International Joint Conference on Neural Networks, Orlando, FL pp 1519-1527 (Aug 2007).
28. Fátima Gutiérrez*, Jennifer Pierce*, Víctor M. Vergara*, Robert Coulter, Linda Saland, Thomas P. Caudell, Timothy E. Goldsmith, Dale C. Alverson, "The Impact of the Degree of Immersion upon Learning Performance in Virtual Reality Simulations for Medical Education", Abstract and short paper in proceedings of Medicine Meets Virtual Reality, Long Beach, CA (Feb, 2007).
29. Chang Ha Lee, Alan Liu, Sofia del Castillo, Mark Bowyer, Dale Alverson, Gilbert Muniz, and Thomas P. Caudell "Towards an Immersive Virtual Environment for Medical Team Training", *Studies in Health Technology and Informatics*, 2007, vol. 125, pp. 274-9.
30. Frank Gilfeather, Thomas Preston Caudell, Timothy Ross, Mahmoud Taha, Panaiotis, Roshan Rammohan, Shan Xia, Jim Cowie, Hung Nguyen, William Ogden, Ram Prasad, Steve Helmreich, Sundara Vadlamudi, Markus Binder, Steve Eisenhower, Terry Bott, "Multivariate Investment Decision Support Tool – MIDST", *Consultants Risk Symposium 2007, Risk Analysis for Homeland Security and Defense, Theory and Application*, March 26-28 2007, La Fonda on the Plaza, Santa Fe, New Mexico.
31. Andrei Sherstyuk, Dale Vincent, Jack Jin Hwa Lui, Kathleen Kihmm Connolly, Kin Lik Wang, Stanley M Saiki, Thomas P. Caudell, "Design and Development of a Pose-Based Command Language for Triage Training in Virtual Reality", *IEEE Symposium on 3D User Interfaces*, Charlotte, North Carolina, USA, March 10-14, 2007.
32. Shan Xia*, Panaiotis, Steve A. Smith, William Ogden, Jim Cowie, Frank Gilfeather, and

Thomas Caudell, "A Modular Architecture for Multivariate Investment Decision Support", Proceedings of the Science and Technology for Chem-Bio Information Systems (S&T CBIS) conference, Austin (January 2007).

33. Roshan Rammohan*, Ryan Schnalzer, Mahmoud Reda Taha, Timothy Ross, Thomas Caudell and Frank Gilfeather,, "Classical versus Evolutionary Multi-Objective Optimization Methods for Optimal Funding Allocations to Mitigate Chemical and Biological Attacks", Proceedings of the Science and Technology for Chem-Bio Information Systems (S&T CBIS) conference, Austin(January 2007).
34. Takeshi Hakamata*, Thomas P. Caudell, and Edward Angel, "Force-Directed Graph Layout using the GPU", Abstract and poster in the IEEE Super Computing Conference, Orlando FL (Nov. 2006).
35. M.J. Healy and T.P. Caudell, "The Knowledge-Driven Synchronization of Neural Network Activity", IEEE/INNS World Congress on Computation Intelligence, Neural Networks Conference, Vancouver, Canada, (July 2006).
36. M.J. Healy and T.P. Caudell, "Generalized Lattices Express Parallel Distributed Concept Learning", IEEE/INNS World Congress on Computation Intelligence, Fuzzy Logic Conference, Vancouver, Canada, (July 2006).
37. Alverson, D.C., Saiki, S.M., Caudell, T.P., Goldsmith, T., Stevens*, S., Saland, L., Colleran, K., Brandt, J., Danielson, L., Cerilli, L., Haris, A., Gregory, M.C., Steward, R., Norenberg, J., Shuster, G., Panaiotis, Holten*, J., Vergara*, V.E., Sherstyuk, A., Kihmm, K., Lui, J., Wang, A., "Reification of Abstract Concepts to Improve Comprehension using Interactive Virtual Environments and Knowledge-Based Design: A Renal Physiology Model", Abstract and short paper in proceedings of Medicine Meets Virtual Reality, Long Beach, CA (Jan, 2006).
38. Vergara*, V.E., Panaiotis, Eyring*, T., Greenfield*, G., Summers*, K.L., Caudell, T.P., "Flatland Sound Services Design Supports Virtual Medical Training Simulations", Abstract and short paper in proceedings of Medicine Meets Virtual Reality, Long Beach, CA (Jan. 2006).
39. Panaiotis, Vergara*, V.E., Sherstyuk, A., Kihmm, K., Saiki, S., Alverson, A., Caudell, T.P., "Algorithmically Generated Music Enhances VR Nephron Simulation", Abstract and short paper in proceedings of Medicine Meets Virtual Reality, Long Beach, CA (Jan. 2006).
40. Robert J. Young*, Mike Ritthaler, Michael J. Healy, Thomas P. Caudell , Peter Zimmer , and John McGraw, "Adaptive Resonance Theory Neural Networks for Astronomical Region of Interest Detection and Noise Characterization ", Astronomical Data Analysis Software and Systems XVI P1-03, ASP Conference Series, Vol. XXX (2006).
41. Jain*, E., Healy, M.J., Saland, L., Hamilton, D., Allan, A., Caldwell, K., Caudell, T.P., "Hypergraphs: Organizing complex natural neural networks", Proceedings of the Third International Conference on Intelligent Sensing and Information Processing, Bangalore (Dec. 2005).
42. Panaiotis, Xia*, S., Vergara*, V.E., Smith, S.A., Caudell, T.P., "Using Algorithmically Generated Music to Enhance VR Decision Science Tool", Proceedings of the Science and

Technology for Chem-Bio Information Systems (S&T CBIS) conference, Albuquerque (Oct. 2005).

43. Xia*, S., Panaiotis, Vergara*, V.E., Smith, S.A., Caudell, T.P., "Flatland Virtual Data Decision Support Tool", Proceedings of the Science and Technology for Chem-Bio Information Systems (S&T CBIS) conference, Albuquerque (Oct. 2005).
44. Alverson, D.C., Caudell, T.P., Saiki, S.M., Sherstyuk, A., Kihmm, K., Bowyer, M., Liu, A., Muniz, G., Goldsmith, T.E., Stevens*, S.M., Coulter, R., Gilfeather, F., "Integrated Medical Performance Assessment and Credentialing Trainer (IMPACT): Distributed Immersive Virtual Reality Simulation for Training and Performance Assessment", Workshop on Computer Games and CSCW: "What Can We Learn About Collaboration, Cooperation, and Community?" ECSCW 2005 - 9th European Conference on Computer-Supported Cooperative Work, Paris (Sept. 2005).
45. Stevens, S.M., Goldsmith, T.E., Summers*, K.L., Sherstyuk, A. Kihmm, K., Holten*, J.R. Davis*, C., Speitel, D., Maris, C., Stewart, R., Wilks, D., Saland, L., Wax, D.S., Panaiotis, Saiki, S., Alverson, D.C., Caudell, T.P., "Learning and Usability within a Virtual Reality Trainer for Medical Students," Proceedings of the Human Factors and Ergonomics Society's 49th Annual Meeting (2005).
46. Healy, M.J., Young*, R., Olinger*, R., Caudell, T.P., Larson, K., "Modification of the ART-1 Architecture Based on Category Theoretic Design Principles", Special Session in the INNS/IEEE International Joint Conference on Neural Networks, Montreal, Canada, pp 457-462 (July 2005).
47. Stevens, S.M., Goldsmith, T.E., Summers*, K.L., Sherstyuk, A. Kihmm, K., Holten*, J.R. Davis*, C., Speitel, D., Maris, C., Stewart, R., Wilks, D., Saland, L., Wax, D.S., Panaiotis, Saiki, S., Alverson, D.C., Caudell, T.P., "Virtual Reality Training Improves Students' Knowledge Structures of Medical Concepts", Abstract and short paper in proceedings of Medicine Meets Virtual Reality, Long Beach, CA (2005).
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164. Caudell, T. P. and Smolka, F. M., "Active Optics with Room Temperature Vulcanizing Silicone Rubber", *Proceedings of the SPIE 115* (Aug., 1977).
165. Caudell, T. P., Rosenwald, R., and Hill, H. A., "Sensitivity of Spectral Lines to Temperature Fluctuation in an Oscillating System", *Joint Symposium on Solar and Interplanetary Physics, Tucson AZ, Book of Abstracts 16* (1977).
166. Hill, H. A., Caudell, T. P., and Rosenwald, R., "On the Influence of the Sun's Outer Layer in the Detection of Solar Oscillations", *The Proceedings of the Solar and Stellar Pulsation Conference in Los Alamos, NM., LASL Report #LA-6544-C, 7* (1976). (Invited)

Art Shows.

1. Panaiotis, Thomas P. Caudell, Andrei Sherstyuk, Dale C. Alverson, Stanley M. Saiki, James Holten III, Chris Davis, Ken Summers, and Victor M. Vergara, "The Waters of Life: A Reified Voyage into the Kidney", *The Art and Artifice of Science*, Santa Fe Museum of Fine Arts, Feb 9 - May 20, 2007.

Invited Talks.

1. "Cognitive Modeling of Emotional Agents to Improve Social Modeling", *Applied Physics Lab* (Oct, 2009)
2. "Introduction to Neural category theory: from neural design principles to cognitive behavior", *UNM Department of Neurosciences Seminar* (Sept. 2005)
3. "Discovery and Analysis of Communication Patterns in Complex Network-based Systems using Virtual Environments", *Linux Cluster Institute, Albuquerque, NM* (1 Oct., 2004).
4. "Discovery and Analysis of Communication Patterns in Complex Network-based Systems using Virtual Environments", *Cluster World, San Jose, CA* (24-26 June, 2003).

5. "Virtual Environments for Discovery and Analysis of Activity Patterns in Complex Network-based Systems", Australia Partnership for Advanced Computing, Interactive Virtual Environments Center, Distributed Interactive Virtual Environments Symposium, Perth, WA, Australia (June, 2003).
6. "A Virtual Patient Simulation Environment for Distributed Collaborative Medical Education", Australia Partnership for Advanced Computing, Interactive Virtual Environments Center, Distributed Interactive Virtual Environments Symposium, Perth, WA, Australia (June, 2003).
7. "eLoom and Flatland: Specification, Simulation and Visualization Engines for the Study of Arbitrary Graph-like Systems", Perth, Australia Section of the ACM SIGGRAPH (June, 2003).
8. "Virtual and Augmented Reality Technology," System Engineering Research Institute, Taejon, Korea (Nov., 1997).
9. "The Homunculus Project," Panel on Virtual Reality in the Gail Memorial Lecture Series at UNM (Oct., 1997).
10. "The Homunculus Virtual Laboratory for the Study of Complex Software Simulation," Keynote Speaker at the Association of Applied Biofeedback and Psychophysiology Annual Meeting, San Diego, CA (Mar., 1997).
11. "Visualization of Complex Software Systems," Annual Meeting of the New Mexico Chapter of the Association for Computing Machinery (ACM) SIGGRAPH. (Feb., 1997).
12. "A Virtual Reality Interface to the Encephalon Autonomous Perceptual Neural Network," Seminar at Florida State University. (Feb., 1997).
13. "A Quadcell Based Optical Head Tracker for Augmented Reality", Boeing Workshop on Wearable Computing, Seattle WA (Aug., 1996).
14. "Studies of Rule Acquisition with the LAPART Neural Network", Special Session on Adaptive Resonance, IEEE International Conference on Neural Networks, Washington D.C.[see Invited Papers] (June, 1996).
15. "The Homunculus Virtual Interface to Autonomous Perceptual Systems", Seminar Univ. of Hawaii (Feb., 1996).
16. "The Homunculus Virtual Interface to Autonomous Neural Networks Systems", Seminar Los Alamos, Adaptive Embedded Processing Group (Feb., 1996).
17. "The Homunculus Virtual Interface to Autonomous Perceptual Systems", Colloquium, Department of Physics, UNM (Oct., 1995).
18. Caudell, T. P., "The Homunculus Virtual Interface to Autonomous Perceptual Systems", Plenary Talk at the IEEE International Conference on Neural Networks, Perth, AUS [see Books, Chapters, Technical Reports, and Proceedings] (Nov., 1995).
19. Caudell, T. P., "Virtual Distributed Industry", Fourth Annual International Conference on Artificial Reality and Telepresence, Tokyo, JAPAN [see Invited Journal and Conference Papers] (July, 1994).

20. Caudell, T. P., "Optical Implementations of Adaptive Resonance Theory Neural Network Architectures", Annual Meeting of the Optical Society of America, Toronto, CANADA (Oct., 1993).
21. Caudell, T. P., National Science Foundation Workshop on Future Directions of the Neuroengineering Research Program, Washington, DC (Oct., 1992).
22. Caudell, T. P., "The Industrial Application of Neural Networks to Information Retrieval and Object Recognition at The Boeing Company", Conference on Neural Networks for Pattern Classification, Wang Institute of Boston University (May, 1992).
23. Caudell, T. P., "A Review of Neural Networks Research and Development at The Boeing Company", Air Force Office of Scientific Research (April, 1992).
24. Caudell, T. P., "Artificial Neural Networks in Virtual Reality-Cyberspace in Hyperspace", San Diego Communications Council Annual Meeting (Mar., 1992).
25. Caudell, T. P., "Applications of Neural Networks at the Boeing Company", Short Course on Artificial Neural Networks, University of New Mexico (Mar., 1992).
26. Caudell, T. P., "Applied Neural Network Research at the Boeing Company", National Science and Technology Board of Singapore, Technology Promotion Program, following the International Joint Conference on Neural Networks-Singapore (Nov., 1991).
27. Caudell, T. P., "Neural Networks Research and Development at The Boeing Company", International Joint Conference on Neural Networks Seattle, Industrial Panel (July, 1991).
28. Caudell, T. P., "PCs for Expert System Development", Technical Panel for WESTEX-86, IEEE Western Conference on Knowledge-Based Engineering and Expert Systems in Anaheim, CA.(1986).
29. Azancot, A., Caudell, T. P., Horowitz, S., Allen, H., Sahn, D., Scagnelli, Stoll, C., Valdes-Cruz, L., and Goldberg, S., "Quantitative Two-Dimensional Echocardiographic Studies of Left Ventricular Shape in the Normal Fetus and Newborn Infant", First Symposium on Fetal Echocardiography in Strasbourg, France (April, 1982).
30. Caudell, T. P., "Solar Diameter Variations", 158th Meeting of the American Astronomical Society in Calgary, Alberta (June, 1981)

Books, Book Chapters, Tech Reports, and Proceedings.

1. Dave Menicucci, Building Specialists Inc. Hongbo He, Andrea Mammoli, and Tom Caudell, "Final Report: Testing and Evaluation for Solar Hot Water Reliability Laboratory University of New Mexico Jay Burch, National Renewable Energy", SANDIA REPORT,SAND2011-5528 Unlimited Release Printed July 2011.
2. Michael L. Bernard, Craig M. Vineyard, Stephen J. Verzi, Shawn E. Taylor, Irene Dubicka, and Thomas P. Caudell Augmented Cognition Tool for Rapid Military Decision Making, SANDIA REPORT SAND2011-7337 (Fall 2011)
3. M. Healy and T. P. Caudell, "Temporal Sequencing via Supertemplates", UMN Technical Report ECE –TR-10-0001, DSpace, UNM, University of New Mexico (March 2010).

4. M Bernard, JD Morrow, S Taylor, S Verzi, C Vineyard, TP Caudell, N Cohen, H Eichenbaum, M McDaniel, and P Watson, "Modeling Aspects of Human Memory for Scientific Study", Sandia National Laboratories, SAND 2009-6164 (Oct 2009).
5. M. J. Healy, T. P. Caudell, and T. E. Goldsmith (2008), "A Model of Human Categorization and Similarity Based Upon Category Theory", UNM Technical Report EECE-TR-08-0010, DSpace UNM, University of New Mexico.
6. D.C. Alverson, T.P. Caudell, T.E. Goldsmith (2008), "Creating Virtual Reality Medical Simulations: A Knowledge-based Design and Assessment Approach", Chapter 31 in Manual of Simulation in Healthcare, in Riley R (ed) Manual of Simulation in Healthcare, pp. 449-64. Oxford University Press, Oxford.
7. David E. Peercy, Wendy L. Shaneyfelt, Eva O. Caldera and Thomas P. Caudell, "A Surety Engineering Framework to Reduce Cognitive Systems Risks," SAND2008-7968, December 2008.
8. David E. Peercy, Wendy Shaneyfelt, Eva O. Caldera, Tom P. Caudell and Kirsty Mills, "Risks, Ethics, and Surety: Impact to Cognitive Systems Applications," SAND2008-1519, March 2008.
9. M. J. Healy and T. P. Caudell (2007), "Generalized Lattices Express Parallel Distributed Concept Learning", Computational Intelligence Based on Lattice Theory, Kaburlasos, V. G. and Ritter, G. X. (Eds.), Studies in Computational Intelligence, Vol. 67, Springer-Verlag:Heidelberg and New York, pp. 59-77.
10. David E. Peercy, Wendy L. Shaneyfelt, Eva O. Caldera, Thomas Caudell and Kirsty Mills, "Investigating Surety Methodologies for Cognitive Systems," SAND2006-6895, November 2006.
11. "Neural Networks, Knowledge, and Cognition: A Mathematical Semantic Model Based upon Category Theory", Healy, M.J. and Caudell, T.P., University of New Mexico, Department of Electrical and Computer Engineering Technical Report EECE-TR-04-020 Report (June 25, 2004)
12. "Telehealth in Cyberspace: Virtual Reality for Distance Learning in Health Education and Training", Alverson,, D.C., Saiki, S.M., and Caudell, T.P., in *Understanding Health Communication Technologies*, Pamela Whitten and David Cook editors, Jossey-Bass Publishers, pp 212-224 (2004)
13. "A low Complexity Recursive Force Directed Tree Layout Algorithm Based on the Lennard-Jones Potential" , Sun*, L., Smith, S.A., Caudell, T.P., ECE Tech Report 03-001 (2003)
14. "Cultural Practice / Virtual Style: Creating an Arts Environment in High Performance Computing", Falliers, Z. D., and Caudell, T. P. to the Digital/New Media Artwork Division of the Rockefeller Foundation (Spring 2002).
15. "Guide to eLoom", Caudell, T. P. and Xaio*, Y. (Fall, 2002)
16. "Principles and Practices of Augmented Reality and Wearable Computing", Co-editors, Barfield, W. and Caudell, T.P., Lawrence Erlbaum Associates, INC Publisher. (Fall, 2000).

17. Barfield, W. and Caudell, T.P., "Basic Concepts in Wearable Computers and Augmented Reality", Chapter in "Principles and Practices of Augmented Reality and Wearable Computing", Co-editors, Barfield, W. and Caudell, T.P., Lawrence Erlbaum Associates, INC Publisher. (Fall, 2000)
18. "Guide to Flatland", Caudell, T.P. editor, APHCC (Fall, 2000 – Fall, 2003).
19. Caudell, T.P. and Healy, M.J., "Lateral Priming Adaptive Resonance Theory (LAPART-2): Innovation in ART", Recent Advances in Artificial Neural Networks, L.C. Jain and A.M. Fanelli Ed. Ch. 6 (Mar., 2000).
20. CRC Handbook on Industrial Electronics, J. David Irwin Editor, Chapter on "Sound in Virtual Environments", with Ms. Nadine Miner, CRC Press (1997), pp. 1397-1404.
21. Computational Intelligence, A Dynamical System Perspective, M. Palaniswami, Y. Attikiouzel, R. Marks II, D. Fogel, and T. Fukuda, Editors, IEEE Press, N.Y., Chapter 17, "The Homunculus Interface to Complex Autonomous Perceptual Systems", Caudell, T. P., Lin*, H., Vo*, V., Hitt*, R. T., Mattes*, D., Haines*, K., pp. 232-245 (1995)
22. Fuzzy Logic, Technology and Applications, IEEE Technology Update Series, IEEE Press, Associate Editor (1994).
23. Proceedings of the First IEEE Virtual Reality Symposium on Virtual Reality, Institute of Electrical and Electronic Engineers Press, T. P. Caudell Editor (Sept. 1993).
24. Adaptive Neural Systems - 1992 Industrial Research and Development Technical Report, Research and Technology, Boeing Computer Services, TR# BCS-CS-ACS-93-008, T. P. Caudell Editor (July, 1993).
25. Adaptive Neural Systems - 1991 Industrial Research and Development Technical Report, Research and Technology, Boeing Computer Services, TR# BCS-CS-ACS-92-001, T. P. Caudell Editor (Feb., 1992).
26. Adaptive Neural Systems - 1990 Industrial Research and Development Technical Report, Research and Technology, Boeing Computer Services, TR# BCS-CS-ACS-91-001, T.P. Caudell Editor (July, 1991).
27. Artificial Reality: a Revolution in Computer Interfaces, Daily, M., Howard, M., and Caudell, T. P., Hughes Internal Report (1990).
28. Nonradial and Nonlinear Stellar Pulsation, Proceedings, Tucson, AZ. Editors H. A. Hill and W. A. Dziembowski, Local Production Coordinator: T. P. Caudell, Lecture Notes in Physics #125, Springer-Verlag (1979).
29. Hill, H. A., Caudell, T. P., and Rosenwald, R., Seismic Sounding of the Sun, The New Solar Physics (Westview Press, Boulder Colorado), Chapter 5 (1978). (Invited).

Review Articles.

1. Caudell, T. P., "Introduction to Augmented and Virtual Reality", Proceedings of the SPIE Conference on Telerobotics and Telepresence, Boston, Vol. 2351, pp. 272-281 (Oct. 1994).
2. Caudell, T. P. and Hill, H. A., "Sun", The Encyclopedia of Physics, eds. R. G. Lerner and G. L. Trigg, VCH Publishers, pp. 1189-1190 (1991).

3. Caudell, T. P. and Hill, H. A., "Solar Physics: The Sun Our Star", The Encyclopedia of Physics, eds. R. G. Lerner and G. L. Trigg, Dowden, Hutchinson and Ross Inc., Publishers (1980).

Tutorials and Short Courses

1. "Fundamentals of Categorical Neural Semantic Theory", International Joint Conference on Neural Networks, Atlanta, GA (June, 2009).
2. "Flatland Virtual Environments and Visualization Tool", MHPCC Workshop, Maui, HA (May, 2001).
3. "Flatland Virtual Environments and Visualization Tool", AHPCC Workshop, Albuquerque, NM (May, 2000).
4. "Application of Neural Networks to Virtual Reality", the IEEE International Conference on Neural Networks, Perth, AUS. (Nov., 1996)
5. "Introduction to Virtual Reality Technology", Ideas in Science and Engineering, ISE '95, Albuquerque, NM (May, 1995).
6. "Application of Neural Networks to Virtual Reality", the IEEE World Congress on Computational Intelligence, Orlando (June, 1994)

Popular Articles

1. "Welcome to Flatland", Computer Graphics World, Vol. 25, No. 9, pp. 31-34 (Sept., 2002)
2. "Creating Little Men", Quantum, Vol. 16, No. 1 (Spring, 2000).
3. "Immersion for the Analyzing Complex Software:", Science News, Vol. 152, p. 261 (Oct 25, 1997).

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1. http://en.wikipedia.org/wiki/Augmented_Reality

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1. Neural Network Fault Detection System and Associated Methods Application No.: 13/333,511, Hongbo He, Andrea Mammoli, Thomas Caudell (Dec 21, 2011).
2. Method of Sound Synthesis, U.S. Patent Number: 6,748,355, Nadine E. Miner & Thomas P. Caudell (8 June 2004).

STUDENTS & POST DOCS:

Post Docs:

- Dr. David Munich (March, 2000 – 2001)
Dr. Kenneth L. Summers (Sept., 2002 – Aug 2004)
Dr. John Greenfield (Nov., 2003 – Aug 2004)
Dr. Victor Vergara (2007-2009)

Ph.D. Students, Major Professor (1994 - Present):

Nadine Miner (Graduated Spring, 1998)
Karen Haines (Graduated Fall, 2000)
Kenneth L. Summers (Computer Science, Research Director, Graduated, Fall 2002)
Moad Mowafi (Graduated Fall, 2003)
John Greenfield (Graduated Fall, 2003)
Victor Vergara (Graduated Spring 2006)
Shan Xia (Graduated Fall 2009)
Shawn Taylor (Graduated Spring 2012)
Cheri Burch (2007-present)

MS Thesis Student, Major Professor (1994 - Present):

Erik Ellis (Graduated Fall, 1997)
Zengfa Gao (Graduated Fall, 2000)
Kim Edlund (Computer Science, Graduated 2002) “
Yunhai Xaio (Graduated Summer, 2003)
Dongshan Gao (Computer Science, Graduated Summer, 2003)
Cheng Zhou (Computer Science, Fall, 2003)
Dulaney Weaver(ECE Spring 2007)
Jess Ryan (ECE Spring 2007)
Rick Olinger (ECE Spring 2008)
Kalyana Venkata (Computer Science , Spring 2008)
Martha Perrez (Computer Science, Summer 2008)
Antony Campisi (Computer Science, Summer 2008)
Orlando Garcia (ECE, Summer 2008)
Anthony Campisi (CS, Spring 2009)

MS Students, Research Supervision (1994 - Present):

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Chris Davis (Computer Science)
Robert Young (Computer Science)
Satyam Kothapally
Lisong Sun (Computer Science)
Lucas Nihlen
Victor Vergara
Tim Eyring
Mike Worrobec (Fine Arts)
Takeshi Hakimata (Computer Science)
Donner Holden
Paula Higgins(ComputerScience)
Gray Jenkins(ComputerScience)
Chunai Chi (Computer Science)
Randy Evans(Computer Science)
Chris Woody
Paul Hubbard
Jeff Ogden
Scott Richards

Dohyung Kim
Mamum Ur Rashed
Kerry Willis (Nursing)
Deborhah Perlman (Chemistry)
Denise Richardson (Computer Science)
Craig Jorgensen (Computer Science)

Undergraduate Students, Research Supervision (1994 - Present):

Cass Malloy
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Paul Weber
Jim Holten (Theater)
Daniel Hust
Luke Nihlen
Flavio Macedo
Joel Bretz
Karen Wells
Tim Eyring
Yoosief Bashere
John Dykes
Sean Patrick
Derek Hart
Paul Hubbard
David Collodos
Victor Rodriguez (CS)
Grant Grossetete
Doug Jones
Dave Mattes
Gabe Velasquez
Kal Hakta
Joaquin Rivera
Henry Wung (ME)
Trung Lai (ME)
Rupal Shah (ME)
Clay Skeet (ME)

Highschool Students (1994 – present)

Steffan King, gifted program(2005-2006)

UNM RESEARCH SERVICE:

Director of the Center for High Performance Computing (now the CARC) Visualization Laboratory (1996-2010)
UNM IFDM/ARTSLab Governance Committee (2007-2008)
UNM Research Cabinet (2007-2009)
NSF Science of Learning Center Catalyst Grant Executive Committee (Oct 2003-2005)
UNM ARTS Lab Steering Committee (Oct 2004-2006)

UNM OVPR/SNL Cognitive Sciences and Systems Technical Liaison (2005-2007)
Director of Center for High Performance Computing (2007-2009)
UNM IFDM Steering Committee (2011-present)

UNM SERVICE:

UNM IFDM Faculty Council (2008-2013)
UNM Vice President for Research, DTRA/DHS Oversight Committee (2009-2011)
UNM IT Cabinet (2007-2009)
UNM IT Managers Council (2007-2009)
UNM Vice President for Research, Research Computing Committee (2008-2009)
UNM Vice President for Research, Research Enhancement Committee (2008-2009)
UNM Vice President for Research, DTRA Strategies Committee (2008-2009)
UNM Vice President for Research Search Committee (Spring 2008)
UNM IFDM/ARTS Lab Directors Search Committee (Spring 2008)
New Mexico Computing Applications Center UNM Exemplar Coordinator. (2008-present)
Chair Microelectronics Faculty Search Committee (2005-2005)
Member of UNM ICES Committee (2005-present)
Member ECE Promotion and Tenure Committee (2002 ,2005-2010)
Member ECE Graduate Committee (1999-2000, 2002, 2004-2010)
Member Search Committee HSC Library for Informatics Faculty (Fall, 2002-Fall, 2003).
Computer Engineering, Computational Intelligence Track Coordinator (Fall, 2002-2007,
2009-2010)
Member Faculty Review Committee for High Performance Computing (Spring, 2002)
Member ECE Strategic Planning Committee (Jan., 2000 - 2001)
Member Search Committee for Fine Arts Artist in Residency (Spring, 2001)
Chair ECE Computer Use Committee (1999 - 2001)
Chair CE Faculty Search Committee (Aug., 1999-May, 2000)
UNM representative to the New Mexico Universities Research Council (1997 - 1998)
Member Search Committee for Chair of Computer Science Department (Fall, 1997-Fall,
1998)
Chair ECE Computer Use Committee (1995 - 1998)
Member, School of Engineering Faculty Improvement and Grievance Committee, (1996 -
1997)
Member, School of Engineering Computer Use Committee (1995 - 1998)
Undergraduate student advisement (Jan., 1993 - present)
Graduate student advisement (Jan., 1993 - present)
Numerous PhD and MS thesis committees.

PROFESSIONAL ACTIVITIES:

Program Committee, International Joint Conference on Neural Networks (2007-2013).
National Science Foundation Review Panel (2003, 2004, 2008).
National Science Foundation Site Visit Review Panel (Spring, 2004).
Program Committee, IEEE Virtual Reality (2004)
Program Committee, IEEE Conference on Wearable Computers, Munich, Germany (2004).
Program Committee, IWAR (2003).
Program Committee, IEEE VRAIS '2000, New Brunswick, NJ (Mar., 2000).

Program Committee, IEEE Conference on Wearable Computers, Munich, Germany (Oct., 2000).

Program Committee, IEEE Conference on Wearable Computers, San Francisco (Oct., 1999).

Program Committee, IEEE VRAIS '99, Houston TX (Mar., 1999).

Program Committee, IEEE VRAIS '98, Atlanta (Mar., 1998).

Program Committee, IEEE Conference on Wearable Computers (Oct., 1998).

Program Committee, First IEEE Conference on Wearable Computers, Boston (Oct., 1997).

Program Committee, IEEE International Conference on Robotics and Automation (April 1997).

Tutorial Chair and Program Committee, Virtual Reality Annual International Symposium, Albuquerque (Mar., 1997).

Organizing Committee of the Boeing Workshop on Wearable Computing, Seattle, WA. (Aug., 1996).

Maui High Performance Computer Center, Image Processing and Visualization National Focus Group Leader (Jan., 1995-1997).

Member of IEEE Computer Society's Technical Committee on Computer Graphics, Virtual Reality Advisory Subcommittee (Nov., 1994 -1999).

IEEE VRAIS Advisory Board (June, 1994-1999).

Organizer and Session Chair of "Augmented Reality-Technology and Applications" as part of SPIE Conference on Telerobotics and Telepresence Technology, Boston, (Oct., 1994).

Program Chair of the Summer Institute on the National Informational Infrastructure, cosponsored by Los Alamos National Labs and the University of New Mexico (Aug., 1994).

Editorial Board of the International Journal on Virtual Reality (Nov 1993-1996).

Chairman of the Virtual Reality Technology Committee of the IEEE Neural Networks Council (Nov., 1992-1998).

Member of Panel on Virtual Reality, IEEE Annual Media Briefing, NY (Oct., 1993).

Associate Editor, IEEE Transactions on Neural Networks (1993-1998).

Originator and Technical Program Cochair of the first IEEE Virtual Reality Annual International Symposium (VRAIS), sponsored by the Virtual Reality Technology Committee of the IEEE Neural Networks Council (Sept., 1993).

Member of Program Committee for International Neural Network Society Annual Conference to be held in Portland (June, 1993).

Member of Program Committee for International Joint Conference on Neural Networks to be held in Nagoya, JAPAN (1993).

Member of Program Committee for the Artificial Neural Networks in Engineering (ANNIE) to be held in St. Louis (1993-present).

Member of Program Committee for Workshop on Combination of Genetic Algorithms and Neural Networks (1992).

Member of International Neural Networks Society's Industry Council (1992-1994).

Editorial Board, Neural Networks Journal (1991-2011).

Industrial Panel Chair, International Joint Conference on Neural Networks, Singapore (1991).

Member of Panel on Neural Networks, Fuzzy Logic and Virtual Reality, IEEE Annual Media Briefing (1991).

Member of Technical Program Committee, Session on Neural Networks, Northcon90
Regional Conference and Trade Show (1990).

Session Chairs at International Joint Conference on Neural Networks and Optical Society of
America (1990-present).

Reviewer for NSF Neuroengineering Program, IEEE Transactions on Neural Networks,
Applied Optics Journal, Neural Networks Journal, John Wiley Press (1989-present).

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