

a. Professional Preparation

1983 Sc.B. in Computer Science, Brown University, Providence, RI, *Topology and Mechanics*. Also completed requirements for an A.B. in Mathematics.

1985 Sc.M. in Computer Science, Brown University, Providence, RI, *Rendering Parametric Surfaces*.

1992 M.S. in Computer Science, California Institute of Technology, Pasadena, CA, *Material Classification of Magnetic Resonance Volume Data*.

1995 Ph.D. in Computer Science, California Institute of Technology, Pasadena, CA, *Geometric Model Extraction from Magnetic Resonance Volume Data*.

b. Appointments

1998- Assistant Professor, Computer Science Department, Brown University

1996-1998 Senior Research Fellow, Division of Biology, California Institute of Technology

1989-1996 Postdoctoral Research Fellow/Research Assistant, Computer Science, California Institute of Technology

1989-1993 Consultant Stardent/Advanced Visual Systems

1986-1989 Software Engineer, Stellar Computer

1983-1985 Research Assistant, Computer Science, Brown University

1983 Teaching Assistant, Brown University

1984 Consultant, Basel Institute for Immunology, Switzerland

c. (i) Five Publications Most Closely Related to Project

R. M. Kirby, H. Marmanis, and D. Laidlaw (1999). Visualizing Multivalued Data from 2D Incompressible Flows Using Concepts from Painting, *Visualization '99 Proceedings*.

Russell E. Jacobs, Eric T. Ahrens, Mary E. Dickinson, and Laidlaw, D. H. (1999). Towards a MicroMRI Atlas of Mouse Development, *Computerized Medical Imaging and Graphics*, 23(1).

Laidlaw, D.H., Fleischer, K.W., and Barr, A.H. (1998). Partial-Volume Bayesian Classification of Material Mixtures in MR Volume Data using Voxel Histograms, *IEEE Transactions on Medical Imaging*.

Shan, J. W., Laidlaw, D. H., Gornowicz, G. G., Lang, D. B., and Dimotakis, P. D., (1997). Three-Dimensional Space-Time Structure of Turbulent Jets, Proc. DFD 97 Meeting of the American Physical Society.

Upton, C., Faulhaber, T., Kamins, D., Laidlaw, D. H., Schleigel, D., Vroom, J. Gurwitz, R., and van Dam, A. (1989). The Application Visualization System: A Computational Environment for Scientific Visualization. *Computer Graphics and Applications*, 9(4).

c. (ii) Five Other Significant Publications

Laidlaw, D. H., Ahrens, E. T., Kremers, D., Readhead, C. (1998). Visualizing Diffusion Tensor Images of the Mouse Spinal Cord. *Proceedings of IEEE Visualization '98*.

Laidlaw, D. H., Barr, A. H., and Jacobs, R. E. (1997). Goal-directed brain micro-imaging. In *Neuroinformatics: An Overview of the Human Brain Project*, vol 1 of Progress in Neuroinformatics.

Tyszka, J. M. Laidlaw, D. H., and Silverman, J. M. (1997). Relative pressure mapping using high-speed three-dimensional phase contrast cine MR imaging. *Radiology*, 205, Suppl. S.

Fleischer, K. W. , Laidlaw, D.H., Currin, B. L., and Barr, A. H. (1995). Cellular Texture Generation, *Computer Graphics* (Proc. Siggraph 95), 29(4).

T. Banchoff, H. Koak F. Bisshopp, and D. Laidlaw (1986). Topology and Mechanics with Computer Graphics: Linear Hamiltonian Systems in Four Dimensions,” *Advances in Applied Mathematics*.

d. Synergistic Activities

This year was the first for a new graduate/undergraduate class *Interdisciplinary Scientific Visualization*. Students wrote “funding” proposals for small, interdisciplinary research projects. “Funded” proposals were implemented and the results presented at a mock conference. Students learned about communicating and working with researchers in another field. <http://www.cs.brown.edu/courses/cs295-5>.

Organized panel at Visualization '98 conference on Art and Visualization (best panel at conference). Participated in followon Visualization '99 panel. Both probed issues of interdisciplinary collaborations.

The final publication above describes AVS, a visualization software product that I was a principal developer on at Stellar Computer. It is widely used to process and visualize MR images as well as other scientific data.

I have advised and continue to seek out undergraduates for research projects both at Brown and, previously, at Caltech. Some of the projects have culminated in research publications. Several have been with women in computer science, a traditionally underrepresented group. I organize the Brown Computer Science undergraduate research opportunities web pages.

e. (i) Collaborators: Eric T. Ahrens, Caltech, Joseph W. Asa, Matthew J. Avalos, Caltech, C. Bajaj, U. Texas, Thomas F. Banchoff, Alan H. Barr, Caltech, Celia F. Brosnan, Albert Einstein College of Medicine, Kristen L. Cook, Caltech, Mary E. Dickinson, Caltech, Paul E. Dimotakis, Caltech, John Donoghue, Brown Kurt W. Fleischer, Pixar, Geoffrey Fox, Felice Frankel, MIT, Scott E. Fraser, Caltech, Yuri M. Goldfeld, Caltech, Galen G. Gornowicz, Dreamworks SKG, Victoria Interrante, U. of Minnesota, Russell E. Jacobs, Caltech, David Kremers, Caltech, Daniel B. Lang, Caltech, H. Marmanis, Brown, Mark D. Montague, Caltech, P. T. Narasimhan, Caltech, Carol Readhead, Cedars Sinai Medical Center, Jerome Sanes, Brown, Jerry W. Shan, Caltech, Jeffrey M. Silverman, Cedars Sinai Medical Center, Michael Tarr, Brown, J. Michael Tyszka, City of Hope Medical Center, Terry Tullis, Brown.

e. (ii) Advisees Daniel Acevedo Feliz, Stuart Andrews, Daniel Keefe, R. Michael Kirby, Georgeta Elizabeth Morai, Paul Reitsma, Song Zhang.

e. (iii) Advisors Alan H. Barr, Caltech, Scott E. Fraser, Caltech.