

CURRICULUM VITAE

Ying Zhu
Assistant Professor
Department of Computer Science
Georgia State University

I. EDUCATION

- Ph.D. in Computer Science, George Mason University, Fairfax, Virginia, USA, 2000
- M.Eng. in Computer Science, University of Electronic Science & Technology, Chengdu, China, 1994
- B.Eng. in Computer Science, Southwest Jiaotong University, Chengdu, China, 1991

II. PROFESSIONAL EXPERIENCE

- Assistant Professor, Department of Computer Science, Georgia State University, Atlanta, Georgia, USA (2003 – present)
- Senior Software Developer, CA, Inc., Dallas, Texas, USA (2000 – 2003)

III. ADMINISTRATIVE EXPERIENCE (ACADEMIC)

- Director of Hypermedia and Visualization Lab, Department of Computer Science, Georgia State University (2006 – present)
- Member of the Scientific Committee, Brains & Behavior Program, Georgia State University (2004 – 2008)
- Member of the task force for studying the creation of Institute of Neuroscience at Georgia State University (2007 - 2008)
- Member of the Faculty Search Committee, Brains & Behavior Program, Georgia State University (2006 – 2007)
- Member of the Seminar Committee, Brains & Behavior Program, Georgia State University (2006 – 2007)
- Member of the Graduate Committee, Computer Science Department, Georgia State University (2004 – present)
- Member of the Graduate Admission Committee, Computer Science Department, Georgia State University (2004 – present)

IV. TEACHING

Courses taught (All courses were taught at Georgia State University.)

- Spring 2008 CSc8820 Advanced Graphics Algorithms
- Spring 2008 CSc4840/6840 (cross listed as COMM 6840, FILM 4840, GrD 4840) Computer Graphics Imaging
- Fall 2007 CSc4820/6820 Computer Graphics Algorithms

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- Spring 2007 CSc8820 Advanced Graphics Algorithms
- Spring 2007 CSc4840/6840 (cross listed as COMM 6840, FILM 4840, GrD 4840) Computer Graphics Imaging
- Fall 2006 CSc4820/6820 Computer Graphics Algorithms
- Spring 2006 CSc8820 Advanced Graphics Algorithms
- Spring 2006 CSc4730/6730 Scientific Visualization
- Fall 2005 CSc4820/6820 Computer Graphics Algorithms
- Spring 2005 CSc4730/6730 Scientific Visualization
- Spring 2005 CSc4840/6840 (cross listed as COMM 6840, FILM 4840, GrD 4840) Computer Graphics Imaging
- Fall 2004 CSc4820/6820 Computer Graphics Algorithms
- Summer 2004 CSc4520/6520 Design and Analysis of Algorithms
- Spring 2004 CSc8820 Advanced Graphics Algorithms
- Fall 2003 CSc4820/6820 Computer Graphics Algorithms

Direction of individual student work

PhD Dissertation Committee Chair

- James Reid (in progress, PhD Candidate, supported by a Brains & Behavior Fellowship)
- Xiaoyuan Suo (in progress, PhD Candidate, supported by a Brains & Behavior Fellowship)
- Jeffrey W. Chastine (Completed in Summer 2007)
- Jason A. Pamplin (Completed in Spring 2007)
- Anthony S. Aquilio (Completed in Fall 2006)

MS Thesis Committee Chair

- Shuman Guo (in progress)
- Tu Tran (in progress)
- Jeremy C. Brooks (in progress)
- Wenjun Ma (Completed in 2007)
- Hsiu-Chung Wang (Completed in 2006)
- Xiaoyuan Suo (Completed in 2006)
- James Reid (Completed in 2006)
- R. Robert Kasemsri (Completed in 2005)
- Geoffrey Bays (Completed in 2005)

MS Project Committee Chair

- Kai Yau (in progress)
- Monika Patel (Completed in Spring 2008)

Undergraduate Directed Reading

- Emlyn Murphy (Completed in Spring 2008)
- William Rowland (Completed in Fall 2005)
- Nicole Henderson (Completed in Fall 2005)

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- Ifieyemi Ogoun (Completed in Fall 2005)
- Christopher Mureithi (Completed in Fall 2004)

Brains & Behavior Summer Assistantship

- Zijing Xia (Summer 2008, in progress)
- Robert S. Casenta (Summer 2008, in progress)
- Hsiu-Chung Wang (Completed in Summer 2005)

Membership on committees for individual student work

PhD Dissertation Committee Member

- Naveen Hiremath (PhD Candidate, in progress)
- Evelyn R. Brannock (PhD student, in progress)
- Hao Tian (Completed in 2007)
- Feng Liu (completed in 2005)

MS Thesis Committee Member

- Inthira Srivrunyoo (Completed in 2007)
- Piyaphol Phoungphol (Completed in 2007)
- Serpil Tokdemir (Completed in 2006)
- Ou Li (Completed in 2006)
- Milan Pandya (Completed in 2006)
- Yu Qiu (Completed in 2006)
- Ning Gu (Completed in 2005)
- Mateena H. Syeda (Completed in 2004)
- Jigesh Parikh (Completed in 2004)

MS Project Committee Member

- Vijay Jain (Completed in 2008)
- Sangwook Lee (Completed in 2005)
- Peipei Fang (Completed in 2004)
- Hongli Ge (Completed in 2004)

V. PUBLICATIONS

1. Y. Zhu, "Visualizing Menisci-Femur Contact Using Deformable Knee Models," *International Journal of Functional Informatics and Personal Medicine*, Vol. 1, No. 1, 2008, pp. 80-102.
2. X. Suo, Y. Zhu, and G. S. Owen, "A Survey of Graphical Passwords," *IAnewsletter*, Vol. 9, No. 2, 2006, pp. 24-28. (Invited magazine article)
3. J. X. Chen, H. Wechsler, M. Pullen, Y. Zhu, and E. MacMahon, "Knee Surgery Assistance: Patient Model Construction, Motion Simulation, and Biomechanical Visualization," *IEEE Transactions on Biomedical Engineering*, Vol. 48, No. 9, September 2001, pp. 1042-1052.

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4. Y. Zhu, J. X. Chen, S. Xiao, and E. MacMahon, "3D Knee Modeling and Biomechanical Simulation," *IEEE Computing in Science and Engineering*, Vol. 1, No. 4, 1999, pp. 82-87.
5. X. Suo, Y. Zhu, and G. S. Owen "A Task Centered Framework for Computer Security Data Visualization," accepted by the 5th International Workshop on Visualization for Cyber Security (VizSEC), 2008. (8 pages. Will be published by Springer in the Lecture Notes in Computer Science.)
6. X. Suo, Y. Zhu, and G. S. Owen, "Measuring the Complexity of Visualization Design," in *VizSEC 2007 - Proceedings of the Workshop on Visualization for Computer Security, Mathematics and Visualization series*, Springer, 2008, pp. 53-66.
7. Y. Zhu, X. Suo, and G. S. Owen, "Complexity Analysis for Information Visualization Design and Evaluation," *Advances in Visual Computing, Lecture Notes in Computer Science (LNCS)*, G. Bebis et al. (Eds.), Vol. 4841, pp. 576-585, Springer-Verlag, 2007. (Acceptance rate 28%)
8. Y. Zhu, "Measuring Effective Data Visualization," *Advances in Visual Computing, Lecture Notes in Computer Science (LNCS)*, G. Bebis et al. (Eds.), Vol. 4842, pp. 652-661, Springer-Verlag, 2007. (Acceptance rate 28%)
9. A. S. Aquilio, J. C. Brooks, Y. Zhu, and G. S. Owen, "Real-time GPU-based Simulation of Dynamic Terrain," in *Advances in Visual Computing, Lecture Notes in Computer Science (LNCS)*, G. Bebis et al. (Eds.), Vol. 4291, pp. 891-900, Springer-Verlag, 2006. (Acceptance rate 23%)
10. X. Suo, Y. Zhu, and G. S. Owen, "Analysis and Design of Graphical Password," in *Advances in Visual Computing, Lecture Notes in Computer Science (LNCS)*, G. Bebis et al. (Eds.), Vol. 4292, pp. 741-749, Springer-Verlag, 2006. (Acceptance rate 23%)
11. H. Tian, R. Sunderraman, R. Calin-Jageman, H. Yang, Y. Zhu, and P. S. Katz, "NeuroQL: A Domain-Specific Query Language for Neuroscience Data," in *Current Trends in Database Technology, Lecture Notes in Computer Science (LNCS)*, T. Grust et al. (Eds.), Vol. 4254, pp. 613-624, Springer-Verlag, 2006.
12. J. A. Pamplin, Y. Zhu, P. S. Katz, and R. Sunderraman, "A 3D User Interface for Visualizing Neuron Location in Invertebrate Ganglia," in *Computational Science - ICCS 2005, Lecture Notes in Computer Science (LNCS)*, V. S. Sunderam et al. (Eds.), Volume 3515, pp. 347-350, Springer-Verlag, 2005. (Acceptance rate 29%)
13. R. Payne, S. O. Belkasim, G. S. Owen, M. C. Weeks, and Y. Zhu, "Accelerated 2D Image Processing on GPUs", in *Computational Science - ICCS 2005, Lecture Notes in Computer Science (LNCS)*, V. S. Sunderam et al. (Eds.), Volume 3515, pp. 256-264, Springer-Verlag, 2005. (Acceptance rate 29%)
14. J. W. Chastine and Y. Zhu, "The Cost of Supporting References in Collaborative Augmented Reality," in *Proceedings of the 34th Graphics Interface Conference (GI)*, ACM, 2008, pp. 275-282. (Acceptance rate 40%)
15. J. W. Chastine, K. Nagel, Y. Zhu, and M. Hudachek-Buswell, "Studies on the Effectiveness of Virtual Pointers in Collaborative Augmented Reality," in *Proceedings of the 3rd IEEE Symposium on 3D User Interfaces (3DUI)*, IEEE, 2008, pp. 117-124. (Acceptance rate 28%)

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16. Y. Zhu, "Simulation and Visualization of Menisci-Femur Contact Using Patient-Specific Deformable Models," in Proceedings of IEEE 7th International Symposium on BioInformatics and BioEngineering (BIBE), IEEE, 2007, pp. 1092-1096. (Acceptance rate 11%)
17. J. W. Chastine, K. Nagel, Y. Zhu, and L. Yearsovich, "Understanding the Design Space of Referencing in Collaborative Augmented Reality Environments," in the Proceedings of the 33rd Graphics Interface Conference (GI), ACM, 2007, pp. 207-214. (Acceptance rate 40%)
18. R. Calin-Jageman, Y. Chen, A. Dhawan, C. Frederick, N. Hiremath, W. Ma, X. Shen, H. Yang, S. Prasad, R. Sunderraman, Y. Zhu, and P. Katz, "Development of NeuronBank: A Federation of Customizable Knowledge Bases of Neural Circuitry," IEEE International Workshop on Service Oriented Technologies for Biological Databases and Tools (SOBDAT), in Proceedings of IEEE Congress on Services (SERVICES 2007), IEEE, 2007, pp. 114-121.
19. J. W. Chastine, Y. Zhu, and J. A. Preston, "A Framework for Inter-referential Awareness in Collaborative Systems," in the Proceeding of the 2nd IEEE International Conference on Collaborative Computing (CollaborateCom), IEEE, 2006, pp. 1-5.
20. H. Tian, Y. Wang, H. Yang, R. Sunderraman, P. Katz, and Y. Zhu, "A Novel Neuron Data Model with Domain Specific Language," in Proceedings of 27th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), IEEE, 2005, pp. 6068-6071. (Acceptance rate 40%)
21. J. W. Chastine, J. C. Brooks, Y. Zhu, G. S. Owen, R. W. Harrison, and I. T. Weber, "AMMP-Vis: A Collaborative Virtual Environment for Molecular Modeling," in Proceedings of ACM Symposium on Virtual Reality Software and Technology (VRST), ACM, 2005, pp. 8-15. (Acceptance rate 30%)
22. X. Suo, Y. Zhu, and G. S. Owen, "Graphical Password: A Survey," in Proceedings of 21st Annual Computer Security Applications Conference (ACSAC), IEEE, 2005. (10 pages) (Acceptance rate 22.8%)
23. J. W. Chastine, Y. Zhu, J. C. Brooks, G. S. Owen, R. W. Harrison, and I. T. Weber, "A Collaborative Multi-View Virtual Environment for Molecular Visualization and Modeling," in Proceedings of the 3rd IEEE International Conference on Coordinated & Multiple Views in Exploratory Visualization (CMV), IEEE, 2005, pp 77-84.
24. F. Liu, G. S. Owen, Y. Zhu, R. W. Harrison, and I. T. Weber, "Web Based Molecular Visualization using Procedural Shaders in X3D," in Proceedings of ACM SIGGRAPH Conference Web Program, ACM, 2005. (6 pages) (Acceptance rate 25%)
25. G. S. Owen, Y. Zhu, J. W. Chastine, and B. R. Payne. "Teaching Programmable Shaders: Lightweight versus Heavyweight Approach," in ACM SIGGRAPH Conference Educators Program, ACM, 2005. (4 pages)
26. Y. Zhu and S. O. Belkasim, "A 3D Reconstruction Algorithm Based on 3D Deformable Atlas," in Proceedings of IEEE International Conference on Information Technology and Applications (ICITA), IEEE, 2005, pp. 607-612. (Acceptance rate 33%)
27. G. Bays and Y. Zhu, "ScoreSVG: A Three-Tiered Software Architecture for Creating Music Scores in SVG," in Proceedings of the 4th Annual Conference on Scalable Vector Graphics (SVG Open), 2005. (7 pages)

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28. Y. Zhu and J. X. Chen, "Simulation and Visualization of Knee Joint Contact using Deformable Model", in Proceedings of the 4th IEEE International Conference on Computer and Information Technology (CIT), IEEE, 2004, pp. 708-715. (Acceptance rate 42%)
29. Y. Zhu, G. S. Owen, F. Liu, and A. Aquilio, "GPU-Based Volumetric Lighting Simulation," in Proceedings of the 7th IASTED International Conference on Computer Graphics and Imaging (CGIM), 2004, pp. 99-103.
30. Y. Zhu, "A Multi-thread Based Terrain Visualization Algorithm," in Proceedings of the 7th IASTED International Conference on Computer Graphics and Imaging (CGIM). 2004, pp. 200-205.
31. J. A. Pamplin and Y. Zhu, "Design and Implementation of a Workflow Rendering Engine," in Proceedings of the International Conference on Modeling, Simulation and Visualization Methods (MSV), 2004, pp. 246-251. (Acceptance rate 35%)
32. E. Wegman, J. Symanzik, P. Vandersluis, Q. Luo, F. Camelli, A. Dzubay, X. Fu, N. Khumbah, R. Moustafa, R. Wall, and Y. Zhu, "The MiniCAVE - A Voice-Controlled IPT Environment," in Proceedings of the International Immersive Projection Technology Workshop, H. J. Bullinger and O. Riedel, Eds. Center of the Fraunhofer Society Stuttgart IZS: Springer, 1999, pp. 179-190.
33. Y. Zhu and J. X. Chen, "Establishing a 3D Human Gait and Knee Model," in Proceedings of the Sixth International Conference in Central Europe on Computer Graphics and Visualization (WSCG), 1998, pp. 541-546.

Peer-reviewed posters or abstracts

34. D. Cofer, J. Reid, Y. Zhu, G. Cymbalyuk, W. H. Heitler, and D. Edwards, "Role of the Semi-lunar Process in Locust Jumping," 16th Annual Computational Neuroscience Meeting (CNS), 2007. (Also appears in BMC Neuroscience, Vol. 8(Sppl 2): P12.)
35. W. Ma, Y. Zhu, R. W. Harrison, and G. S. Owen, "Managing User Privacy and Cooperation Demand in a Collaborative Molecular Modeling Virtual System," in Proceedings of IEEE Virtual Reality Conference (Poster), 2007, pp. 301-302. (Acceptance rate for papers, sketches, and posters is about 40%)
36. D. W. Cofer, J. Reid, Y. Zhu, G. Cymbalyuk, W. Heitler, D. Edwards, "Biomechanical Simulation of the Escape Response in Crayfish and Locust," 36th Society for Neuroscience Annual Meeting, 2006.
37. D. W. Cofer, J. Reid, O. Pochapinsky, Y. Zhu, G. Cymbalyuk, W. Heitler, D. Edwards, "AnimatLab: A Physics Accurate 3-D Environment for Behavioral Neurobiology Research," 15th Annual Computational Neuroscience Meeting (CNS), 2006.
38. D. W. Cofer, J. Reid, Y. Zhu, G. Cymbalyuk, W. J. Heitler, D. H. Edwards, "AnimatLab: A Physics Based 3-D Graphics Environment for Behavioral Neurobiology Research," 35th Society for Neuroscience Annual Meeting, 2005.
39. J. W. Chastine, J. C. Brooks, Y. Zhu, G. S. Owen, R. W. Harrison, I. T. Weber, "Emphasizing the Area of Interesting Using Real-Time Shaders," 32nd International Conference on Computer Graphics and Interactive Techniques (SIGGRAPH) (Research Poster), ACM, 2005.

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40. D. W. Cofer, J. Reid, Y. Zhu, D. H. Edwards, "A 3D Graphics Toolkit for Studying Neural Basis of Adaptive Behavior," 32nd International Conference on Computer Graphics and Interactive Techniques (SIGGRAPH) (Research Poster), ACM, 2005.
41. F. Liu, G. S. Owen and Y. Zhu, "Universal Converter for Platform Independent Procedural Shaders in X3D," in ACM SIGGRAPH Conference on Web Graphics, ACM, 2004.
42. D. Cofer, Y. Zhu, D. H. Edwards, A. Aquilio, G. Cymbalyuk, and G. S. Owen, "A 3D Graphics Environment for Behavioral Neurobiology Research," ACM SIGGRAPH Conference Research Posters Program, ACM, 2004.
43. B. Payne, G. S. Owen, I. Weber, Y. Zhu, and P. Liu, "A Portable, Reusable Framework for Scientific Computing on GPUs," ACM SIGGRAPH Conference Research Posters Program, ACM, 2004.
44. Y. Zhu, J. X. Chen, X. Fu, and D. Quammen, "A Virtual Reality System for Knee Diagnosis and Surgery Simulation," in Proceedings of IEEE Virtual Reality Conference (Poster), IEEE, 1999, p. 84.

a. Professional Presentations

1. "AnimatLab: A Toolkit for Analysis and Simulation of the Neural Control of Behavior," Southeastern Universities Research Association (SURA) Cyberinfrastructure Workshop: Life Sciences and the Grid, Virginia Commonwealth University, 2006.
2. "Identified Neuron Database Project: Database and Visualization Issues," Winter Workshop on Biocomputing Workshop, Georgia State University, Atlanta, 2005.
3. "A Plan for Visualization and Mapping Neurons," Identified Neuron Database Workshop, Georgia State University, Atlanta, 2004.
4. "Graphics Simulation and Visualization for Neuroscience Research", Georgia State University Neuroscience Symposium, Atlanta, 2004.
5. "3D Animated Crayfish Model for Neurobiological Study of Adaptive Behaviors", 2nd Georgia State Biotech Symposium, Atlanta, 2004.

b. Editorial/Reviewer Projects

- Associate Guest Editor: Special Issue of the International Journal of Pervasive Computing and Communications 2006
- Reviewer for journals
 - IEEE Transactions on Multimedia 2007
 - IEEE Network 2006
 - IEEE Computing in Science and Engineering (CiSE) 2006
 - Journal of Visualization 2007
 - Journal of Virtual Reality and Broadcasting 2007, 2008
 - PRESENCE: Teleoperators and Virtual Environments 2003
- Reviewer for conferences
 - IEEE Visualization Conference (VIS) 2005, 2006, 2007
 - IEEE Virtual Reality Conference (VR) 2005, 2007, 2008
 - IEEE Symposium on Visual Analytics Science and Technology (VAST) 2006

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- IEEE Symposium on 3D User Interfaces (3DUI) 2007
- IEEE Annual Computer Security Applications Conference (ACSAC) 2006
- ACM SIGGRAPH Conference, Research Posters Program 2005, 2006
- ACM SIGGRAPH Conference, Course Program, 2005
- International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG) 2004, 2005, 2007, 2008
- International Conference on Computational Science (ICCS) 2005
- IEEE International Conference on Information Technology and Applications (ICITA) 2005
- Members of Program Committee
 - 7th IEEE Information Assurance Workshop (IAW) 2006
 - ACM SIGGRAPH conference, posters program 2005
 - IEEE Virtual Reality Conference 2002, 2003
 - International Symposium on Bioinformatics Research and Applications (ISBRA) 2007, 2008
 - IASTED International Conference on Computer Graphics and Imaging (CGIM) 2005, 2007, 2008
 - IEEE International Conference on Computer and Information Technology (CIT) 2004, 2005, 2006, 2007, 2008
- Reviewer for book
 - Edward Angel, “Interactive Computer Graphics”, 4th Edition, Addison-Wesley 2005

c. Grants and External Funding

1. National Institute of Health (1R21MH076753 – 01)
2006 – 2008
Title: “NeuronBank: A Database for Identified Neurons and Synaptic Connections”
Role: Co-PI (PI: Paul S. Katz, Other Co-PIs: Raj Sunderraman, Sushil Prasad)
2. Georgia State University Brains & Behavior Program Seed Grant
2006 - 2007
Title: “AnimatLab: Software for neuro-biomechanic simulation”
Role: Co-PI
3. Georgia State University Faculty Mentoring Grant
2005 – 2006
Title: “Graphical Simulation of Vehicle-Terrain Interaction for Real-time Training Applications”
Role: PI
4. Georgia State University Brains & Behavior Program Seed Grant
2005-2006
Title: “NeuronBank: Knowledgebase of Identified Neurons and SynapticConnections”

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Role: Co-PI

5. Georgia State University Brains & Behavior Program Seed Grant
2004 –2005
Title: “A Web based database for identified neurons”
Role: Co-PI
6. Georgia State University Biomedical Computing Center Seed Grant
(sponsored by a NIH Exploratory Centers (P20) for Interdisciplinary Research Grant)
2004 –2006
Title: “Design of Molecular Complexes Using a 3-Dimensional Direct Manipulation Interface”
Role: PI
7. Georgia State University Research Initiation Grant
2004 – 2005
Title: “Fast and Realistic Visualization of Large Terrain Database”
Role: PI
8. Georgia State University Biomedical Computing Center Seed Grant
(sponsored by a NIH Exploratory Centers (P20) for Interdisciplinary Research Grant)
2003 –2006
Title: “3D Animated Crayfish Model for Neurobiological Study of Adaptive Behaviors”
Role: PI

VI. PROFESSIONAL ACTIVITIES

- Co-Chair of Doctoral Consortium, Third International Conference on Design Science Research in Information Systems and Technology (DESRIST) 2008
- Technical Track Chair: ACM SIGGRAPH conference Web Program, 2005
- Member of ACM and ACM SIGGRAPH 2002 – present

VII. HONORS, AWARDS AND RECOGNITION

- Honorable Mention (2nd place), best paper award competition in the 3rd IEEE Symposium on 3D User Interfaces (3DUI 2008) for the paper “Studies on the Effectiveness of Virtual Pointers in Collaborative Augmented Reality” (co-authored with J. W. Chastine, K. Nagel, and M. Hudachek-Buswell).
- Featured as domain expert in the following article: "Spotlight on Research: Dr. Ying Zhu," IANewsletter, Vol. 9, No. 2, pp. 23, 2006.
- Doctoral Scholarship, Provost's Office, George Mason University, 2000
- Doctoral Fellowship, School of Information Technology and Engineering, George Mason University, 1999

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- Outstanding Graduate Student Award, Computer Science Department, University of Electronic Science and Technology (China), 1994
- Outstanding Student Award, Southwest Jiaotong University (China), 1991
- Undergraduate Scholarship, Southwest Jiaotong University (China), 1987 -1991

(Last updated in June 2008)