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OBJECTIVE

To strive for excellence in all facets of academic life and contribute to the quality of a prestigious degree program at an outstanding institution of higher learning.

EDUCATION

Georgia State University   *Spring 2000-Fall 2004*

Ph.D. in Computer Science. Graduate Research Assistant in Computer Graphics. Research included computer vision, digital image processing and bioinformatics applications on graphics processing units. Major area computer graphics, minor area digital signal and image processing, electives in computational intelligence.

Doctoral dissertation topic: *Accelerating Scientific Computation in Bioinformatics by Using Graphics Processing Units as Parallel Vector Processors.*

North Georgia College & State University   *Spring 1998-Fall 1999*

M.Ed. in Mathematics. Served as graduate teaching assistant in the Department of Mathematics & Computer Science, teaching CSCI 1200 – Technology and Learning – an application-based course for education students using SMARTBoard technology. Selected coursework included topology, dynamic systems/chaos theory, discrete math, and differential equations.

North Georgia College & State University   *Spring 1996-Fall 1997*

B.S. in Mathematics, *magna cum laude.* Special interest in number theory, cryptography, abstract algebra, & geometry.

Georgia Institute of Technology   *Summer 1991-Winter 1996*

Electrical Engineering/Economics major.

Young Harris College   *Fall 1989-Spring 1991*

Associate of Arts degree, *with highest honors.* Liberal Arts major with emphasis on French and mathematics.

TEACHING EXPERIENCE

North Georgia College & State University   *Fall 2005-present*

Assistant Professor of Computer Science

> *Academic Responsibilities:* Instruction and advisement for undergraduate CS and CIS programs. Coordination of several student researchers, senior projects, and internships, and coach of two departmental programming competition teams. Computer Science Curriculum Committee member, Faculty Senator, University Technology Committee member, Security and Access Committee member. Developed www.cs.ngcsu.edu web site, CS/CIS course rotation schedule, Computer Science degree program to be offered at Forsyth County campus. Responsible for scheduling upper-level CS/CIS courses & labs for five faculty members, maintenance of multiple servers, and lab imaging.

Courses taught/developed: Collaborative Knowledge Development Learning Community course, Intro to Computers in Society, Intro to Computer Science core curriculum course, Computer Science I & II (Java), Web Programming, Computer Graphics, Computer Animation, Senior Projects, Internships, GUI Programming, Artificial Intelligence, Design and Analysis of Algorithms, Digital Image Processing.

Georgia College & State University   *Fall 2003-Summer 2005*
Instructor, Assistant Professor of Information Systems
> *Academic Responsibilities:* Instruction and advisement for undergraduate and graduate MIS programs. Coordination of graduate assistants, server maintenance for departmental servers, and lab imaging.
> *Courses taught/developed:* Intro to Computers in Business, Object Oriented Programming & Development/Java, Computer Programming/Java, Object-Oriented Language (C++), Networking and Telecommunications 1 & 2, Special Topics (Web Programming & Administration), Ecommerce Development.

North Georgia College & State University   *Spring 1998-Spring 2003*
Graduate Teaching Assistant, Instructor, and Assistant Professor
> *Academic Responsibilities:* Instruction and advisement for undergraduate CS and CIS programs.

Duluth Middle School, Duluth, GA   *Fall 1998-Spring 1999*
Gifted Mathematics Teacher, Grades 6-8
> Coordinated MathCounts team, taught several staff development courses in instructional technology.

ADMINISTRATIVE EXPERIENCE

North Georgia College & State University   *Fall 2006-present*
Co-Director of Quality Enhancement Plan
> Co-director of Information Literacy Quality Enhancement Plan implementation for SACS reaffirmation, in charge of $160,000/year budget for assessment, data collection, faculty development, for five-year accreditation reaffirmation project.

North Georgia College & State University   *Fall 1999-Spring 2003*
ICAPP Director
> Developed and administered two-year $830,000 grant program for IT education. Developed curriculum for Network Administration and Web Programmer concentrations. Recruited and supervised six faculty members plus network administrator and secretarial staff. Produced 41 IT graduates in two years. Developed additional proposal under the ICAPP Health initiative in coordination with Nursing Department. Initial request denied, but proposal redeveloped and resubmitted, funding granted in April 2006 for $195,647.

PUBLICATIONS

Books/Monographs/Chapters
- B. R. Payne. Accelerating Scientific Computation in Bioinformatics by Using Graphics Processing Units as Parallel Vector Processors. (Doctoral dissertation, Georgia State University, 2005). *Dissertation Abstracts International* (UMI No. AAT 3170179, ISBN No. 0542060167).

Proceedings & Proceedings Abstracts
- B. R. Payne and M. A. Hitz, "Implementing Residue Number Systems on GPUs", research poster presented at SIGGRAPH 2006, abstract in *Proceedings of SIGGRAPH 2006*, Boston, MA. July 30-August 3, 2006.
- A. S. Montemayor, J. J. Pantrigo, R. Cabido, and B. R. Payne, "Improving GPU Particle Filter with Shader Model 3.0 for Visual Tracking", research poster presented at SIGGRAPH 2006, abstract in *Proceedings of SIGGRAPH 2006*, Boston, MA. July 30-August 3, 2006.
- A. S. Montemayor, J. J. Pantrigo, and B. R. Payne, "Bandwidth-Improved GPU Particle Filter for Visual Tracking", SIACG 2006, Santiago de Compostela, Spain. July 5-7, 2006.
- M. A. Hitz and B. R. Payne, "Fine-Grain Parallel Computing on Graphics Processors", ECCAD 2006, Philadelphia, PA. May 6, 2006.
- B. R. Payne, "Digital Image Processing on GPUs", Invited Lecture published in Proceedings of *Seminarios sobre Sistemas Inteligentes* (SSI'06), Universidad Rey Juan Carlos, Madrid, Spain, March 17, 2006.
- M. A. Hitz and B. R. Payne, "Implementing an XML-Based Device-Independent Scalable Graphical User Interface", 2005 Mid-Southeast ACM Chapter Fall Conference, Gatlinburg, TN. November 10-11, 2005.
- B. R. Payne. "Using 3D Modeling and Animation to Motivate Geometric Visualization in Elementary Math Students". 2005 Georgia Mathematics Conference, Rock Eagle, GA. October 19-22, 2005.
- Payne, B.R. "A project-based Web programming course approach for information systems majors". In *Proceedings of the 33rd Annual Conference of the International Business School Computing Association* (Savannah, GA, USA, July 24-27, 2005). IBSCA 2005. IBSCA, Bristol, RI, 39-51.
- G. S. Owen, Y. Zhu, J. A. Chastine, and B. R. Payne. "Teaching Programmable Shaders: Lightweight versus Heavyweight Approach," in ACM SIGGRAPH Conference Educators Program. Los Angeles, CA: ACM, 2005.
- B. R. Payne, G. S. Owen, I. T. Weber, "Accelerating Protein Structure Recovery Using Graphics Processing Units" in Proceedings of International Conference on Computational Science (ICCS 2005), *Lecture Notes in Computer Science*, Springer-Verlag, 2005.
- B. R. Payne, S. O. Belkasim, G. S. Owen, M. C. Weeks, and Y. Zhu, "Accelerated 2D & 3D Image Processing on GPUs," in Proceedings of the 4th International Workshop on Computer Graphics and Geometric Modeling (CGGM'05): *Lecture Notes in Computer Science*, Springer-Verlag, 2005.
- "A Portable, Reusable Framework for Scientific Computing on GPUs," (with G. Scott Owen, Irene Weber, Ying Zhu and Ping Liu), a presentation at ACM SIGGRAPH 2004, The 31st International Conference on Computer Graphics and Interactive Techniques, Los Angeles, CA, August 8-12, 2004.
- "Accelerating Automated Structure Fitting in Protein Crystallography by Using Programmable Graphics Processors," (with G. Scott Owen, Irene Weber, Ying Zhu and Ping Liu), a poster presented at The 2nd Georgia State Biotech Symposium, Atlanta, GA, May 24-25, 2004.

Professional Presentations (Without Proceedings) and Invited Lectures
- A. S. Montemayor, J. J. Pantrigo, R. Cabido, and B. R. Payne, "Efficient GPU Particle Filters for Visual Tracking", research poster abstract submitted to GPGPU Workshop

at the International Conference for High Performance Computing, Networking, Storage, and Analysis (SC06), Tampa, FL. November 11-17, 2006.

- B.R. Payne, "Digital Image Processing on GPUs", Invited Lecture, Universidad de Jaén, Jaén, Spain, June 28, 2006.
- B.R. Payne, "General Purpose Programming on Graphics Processing Units", Invited Lecture, Universidad de Granada, Granada, Spain, June 26, 2006.
- "Motivating Geometric Vision in Elementary Math with Computer Graphics", Georgia Educational Technology Conference (GaETC) 2005. College Park, GA. November 9-11, 2005.
- K. Heriot and B. Payne. "Teaching Georgia Studies: Enhancing Classroom Participation with Technology". Georgia Council for the Social Studies State Conference, Athens, GA. October 20-21, 2005.
- "Geometric Visualization with Java3D!," a workshop presented at The Georgia Mathematics Conference, Eatonton, GA, October 14-16, 2004.
- "Bioinformatics Applications of the GPU: Automated Structure Fitting in Protein Crystallography", Bryson R. Payne, G. Scott Owen, Irene Weber, Ying Zhu, and Ping Liu. A research poster presented at the ACM Workshop on General Purpose Computing on Graphics Processors, Los Angeles, CA, August 7-8, 2004.
- "Accelerated 2-D and 3-D Digital Image Processing on a GPU," (with G. Scott Owen, Saeid O. Belkasim, and Patrick Flynn), a research poster presented at the ACM Workshop on General Purpose Computing on Graphics Processors (GPGPU), Los Angeles, CA, August 7-8, 2004.
- "Teaching Portfolios 1: Digital Portfolios on the Web," Invited seminar presentation for NGCSU Faculty Development Advisory Council. April 2001.
- Session Chair, E-commerce Development, "11th Annual Winter Chautauqua", Dalton Trade and Convention Center, March 5, 2001.
- Payne, B. R. (2000, February). Building Educational Web Sites: Using the Internet to Enhance Learning Communities. Invited workshop presentation to faculty of North Georgia College & State University as part of Learning Communities staff development series, North Georgia College & State University, Dahlonega, GA.
- Payne, B. R., Sims, S. B. (2000-2001). Taught more than 30 invited seminar workshop presentations for over 400 participants through the Georgia Appalachian Development Center's Small Business Outreach program, North Georgia College & State University, Dahlonega, GA. Topics included E-Commerce, Web Development, and Programming.
- Payne, B. R. (2000, January). Teaching Interactive Lessons Using the SMARTBoard. Invited seminar presentation to Mathematics and Computer Science faculty for spring semester staff development, North Georgia College & State University, Dahlonega, GA.
- Payne, B. R. (1999, February). Creating Brochures and Newsletters Using Microsoft Word. Invited workshop presentation for staff development, Duluth Middle School, Duluth, GA.
- Payne, B. R. (1998, September). Using PowerPoint and Microsoft Office in the Classroom. Invited workshop presentation for staff development, Duluth Middle School, Duluth, GA.

Other Publications or Research
- Member of Graphics Curriculum Working Group of ACM SIGGRAPH Education Committee, August 2005.

- "Using digital portfolios in teacher education," (interview conducted by Rob Kelly), <u>Online Classroom,</u> vol. 1, page 3, 2001.

Research in Progress
- "G-DIP: An API for Digital Image Processing on GPU Hardware", with G. Scott Owen, Ying Zhu, and Saeid O. Belkasim. For submission to IEEE.
- Web developer and data retrieval consultant for Ethics-Research.org; publications forthcoming Fall 2006 – Spring 2007
- Supervising three student research projects in Image Processing, SVG/AJAX, and Video Super-resolution Processing in progress for conference submissions.

GRANTS
- Leaders in Technology Program, awarded $990 in 2005 for computer animation & visualization software.
- Leaders in Technology Program, awarded $3,000 in 2002 for visual production equipment & software.
- Intellectual Capital Partnership Program, awarded $345,000 in August, 2001.
- Intellectual Capital Partnership Program, awarded $495,000 in August, 2000.

PROFESSIONAL ACTIVITIES

Dissertations/Theses Advised
D. Antonio Sanz Montemayor – Universidad Rey Juan Carlos, Madrid, Spain; Doctoral dissertation committee member – Defended March 2006.
D. Carlos Ogáyar – Universidad de Granada, Granada, Spain; Doctoral dissertation committee member – Defending June 20, 2006.

Editorial/Reviewer Activities (Journals, Conferences, and Textbooks)
- SIGGRAPH 2006 Posters Reviewer, Boston, MA, July 30-August 3, 2006.
- CGGM 2006 Program Committee Member and Papers Reviewer, Computer Graphics & Geometric Modeling workshop of the International Conference on Computational Science 2006, Reading, UK, May 28-31, 2006.
- Textbook Reviewer, <u>Absolute Java</u>, second edition, authored by Walter Savitch, Addison-Wesley, 2006.
- Textbook Reviewer, <u>Starting Out with Java</u>, authored by Tony Gaddis, Scott/Jones Inc., El Granada, CA, 2004.
- Textbook Reviewer, <u>Starting Out with Java, Alternate Edition</u>, authored by Tony Gaddis, Scott/Jones Inc., El Granada, CA, 2003.

Professional Development Workshops & Seminars Attended
- Fulbright Scholar Workshop, Atlanta, GA, August 16, 2006.
- SACS Assessment Teleconference Seminar, NGCSU, summer 2006.
- AAC&U Technology & Learning Workshop, Seattle, WA, April 20-22, 2006.
- Apple Digital Campus Leadership Institute, Milledgeville, GA, November 1-3, 2005.
- Child Internet Safety Training Workshop, offered by Georgia Bureau of Investigations, at IBSCA 2005, Savannah, GA, July 25, 2005.
- Meetingworks Advanced Training Workshop, Troy, MI. October 10, 2003.
- Chancellor's Leadership Institute, Amicalola Falls Lodge, Dawsonville, GA. March 2003.

- Cg Programming Workshop, sponsored by NVIDIA at SIGGRAPH, San Antonio. July 27, 2002.

Individual Instructional Development Activities
- Developed and taught Learning Community titled "Collaborative Knowledge Development" in conjunction with Dr. Chuck Robertson, Psychology – using iPods, podcasting, blogging, wikis and other collaborative technologies, Fall 2006.
- Developed and taught new PHP/MySQL/JavaScript/AJAX/Flash Web Programming course (CSCI 3000) – included arranging and supervising service projects for 21 CS/CIS majors to perform Web programming services to the campus, Fall 2006.
- Taught summer honors class in 3D Animation, Summer 2006.
- Along with Dr. Markus Hitz, developed the course syllabus and proposal for CSCI 4350 – Design and Analysis of Algorithms, Spring 2006.
- Developed new Python/OpenGL-based curriculum for CSCI 3600 – Computer Graphics, Spring 2006.
- Proposed and developed new selected topics course, CSCI 3900 – Computer Animation, Fall 2005.
- Proposed and developed new special topics course, CBIS 4505 – Web Programming in PHP/MySQL, Spring 2005 (GC&SU).
- Maintained teaching portfolio, 1999-present.
- Taught three sessions of courses in 3D Graphics for Post-Secondary Readiness Enrichment Program (PREP) seventh grade visits at NGCSU (P-16 initiative program), 2002-2003.
- Taught Summer Honors Program focus group course in 3D Animation at NGCSU (2003).
- Conducted more than 30 evening workshops and courses for the Georgia Appalachian Development Center in Web Design, Programming, and E-commerce. Over 400 participants attended over a two-year period (2000 & 2001).
- Directed curriculum development for four new CSCI courses for the ICAPP project at NGCSU in Web Programming and Network Administration.

International Exchange Programs
- Gave invited lecture at two workshops in Spain, March and June, 2006.
- Participated in undergraduate exchange program in Toulouse and Paris, France through Young Harris College, November-December 1990.

Professional Association Memberships
- Association for Computing Machinery
- IEEE Computer Society
- ACM SIGGRAPH
- Georgia & National Councils of Teachers of Mathematics
- Omicron Delta Kappa

Offices/Committees
- SIGGRAPH Education Committee Open-Source Coordinator, Web developer for HyperGraph and HyperVis resources, 2006-present
- National Council of Teachers of Mathematics, 2007 Conference Volunteers Co-Chair (2005-present).

- International Conference on Computational Science (ICCS) 2006 Computer Graphics and Geometric Modeling Program Committee, 2005-2006.
- Georgia Mathematics Conference Board of Directors, 2005-present.
- Georgia Council of Teachers of Mathematics, Webmaster, 2002-present.

Conference Meeting Attendance
- ECCAD'06, Drexel University, Philadelphia, PA, May 6, 2006.
- SSI'06, Universidad Rey Juan Carlos, Madrid, Spain, March 17, 2006.
- CCSC Southeastern Conference, Hickory, NC, November 11-12, 2005.
- 2005 Mid-Southeast ACM Conference, Gatlinburg, TN, November 10-11, 2005.
- GaETC 2005, College Park, GA, November 9-11, 2005.
- GMC 2005, Eatonton, GA, October 20-22, 2005.
- SIGGRAPH 2005, Los Angeles, CA, July 31 – August 1, 2005.
- IBSCA 2005, Savannah, GA, July 24-27, 2005.
- CGGM 2005, Atlanta, GA, May 2005.
- ICCS 2005, Atlanta, GA, May 2005.
- SIGGRAPH 2004, Los Angeles, CA, August 8-12, 2004.
- GMC 2004, Eatonton, GA, October 19-21, 2004.
- GP2, Los Angeles, CA, August 7-8, 2004.
- GMC 2003, Eatonton, GA, October 16-18, 2003.
- SIGGRAPH 2003, San Diego, CA, July 26-August 1, 2003.
- SIGGRAPH 2002, San Antonio, TX, July 26-August 1, 2002.
- ACM South East Conference, Athens, GA, March 3-5, 2002.
- SIGGRAPH 2001, Los Angeles, CA, July 25-August 1, 2001.

Honors, Awards and Recognition
- Center of Teaching & Learning Excellence's Instructional Technology Innovation Award, 2006.
- Summer Honors Program Outstanding Course Recognition, 2006.
- "I Caught You Caring" Award Recipient (GC&SU), March 2005.
- Recipient of multiple graduating student recognition letters (GC&SU), 2003-2005.
- Recipient of multiple graduating student recognition letters (NGCSU), 2000-2003.

SERVICE ACTIVITIES

University/School/Department Service
- Co-Director of Quality Enhancement Plan, 2006-present.
- Academic Activities Committee, 2006-present.
- Academic Review Committee, 2006-present.
- At-Large Faculty Senator (NGCSU), 2006-present.
- University Technology Committee (NGCSU), 2005-present.
- Committee on Committees (NGCSU), 2006-present.
- Computer Science Curriculum Committee (NGCSU), 2005-present.
- Security & Access Committee (NGCSU), 2005 – 2006.
- Taught two Blog training courses for Nursing department (NGCSU), Spring 2006.
- Computer Programming Teams (Junior and Varsity) Faculty Sponsor (NGCSU), 2005-present.
- Set up and configured CTLE Blog/PHP/MySQL server (NGCSU), Fall 2005.

- Organized Computer Animation Festival to showcase CSCI 3900 student projects (NGCSU), Fall 2005.
- Compiled CS/CIS Undergraduate Catalog Course updates (NGCSU), Fall 2005.
- Developed complete CS Course Rotation Schedule (NGCSU), Fall 2005.
- Installed & Configured Oracle Application Server Data Warehouse & Portal for Office of Institutional Research (GC&SU), 2005.
- Apple iPod Digital Campus "iDreamers" Committee (GC&SU), 2004-2005.
- Financial Aid Appeals Committee (NGCSU), 2000-2003, chair 2002-2003.
- Math Education Faculty Search Committee (NGCSU), 2001-2003.
- Computer Science Curriculum Committee (NGCSU), 2000-2003.
- Faculty Affairs Committee (NGCSU) secretary, 2002-2003.

Consulting Projects
- Programmed online PHP/MySQL/AJAX Small Business Loan Tracking System for Appalachian Community Enterprises, Inc. (aceloans.org), 2006.
- Programmed all PHP/MySQL interaction for Ethics-Research.org, 2004-2006.
- Program & maintain Georgia History computer game "HistoryTrek™" for The History Game Company, Inc., 2001-present.
- Programmed PHP/MySQL web-based accounting system for Mason Business Services, Inc., December 2005.
- Programmed PHP/MySQL online credit card system for GCTM conference registration, August-October 2005.
- Visual Basic security programming for a startup company, AdminEye, 2001-2002.

COMPUTER SKILLS

Platforms:	System and network administration experience with Windows, Linux, Mac OS X, multiple Web application platforms including LAMP, Plone/Zope, Tomcat, IIS & .NET servers, Cisco and other vendor networking equipment and network management software, multiple mail servers including SmarterMail, qmail, and IMail, iPod course development including podcasting
Languages:	Java, Python, PHP, C/C++, JavaScript, Visual Basic, shell scripting, Perl, C#, ASP.NET, OpenGL & DirectX APIs, Cg, COBOL, FORTRAN 77
2D/3D packages:	3DS Max, Maya, Blender, Animation:Master, Flash & Dreamweaver, Jasc Paint Shop Pro, Adobe PhotoShop and Premier, AutoCAD
Database systems:	MySQL, Oracle (Database, Data Warehouse, Data Mining and Business Intelligence tools), Microsoft Access, SQL Server, PostgreSQL