

**Kevin T. McDonnell, Ph.D.**

*August 8, 2010*

Associate Professor of Computer Science and Chair  
Department of Mathematics and Computer Science  
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## **Education**

**Ph.D. in Computer Science**, August 2003  
Stony Brook University, Stony Brook, NY  
Dissertation Title: *DYNASOAR: DYNAMIC Solid Objects of ARbitrary topology*  
Thesis Advisor: Professor Hong Qin (Computer Science, Stony Brook University)

**M.S. in Computer Science**, May 2001  
Stony Brook University, Stony Brook, NY

**B.S. in Computer Science, Applied Mathematics**, May 1998  
Stony Brook University, Stony Brook, NY  
Graduated *summa cum laude*, Honors College graduate

## **Faculty Appointments and Previous Academic Positions**

- **Department Chair, September 2009 – present**  
**Associate Professor of Computer Science, September 2009 – present**  
Dowling College, Department of Mathematics and Computer Science, Oakdale, NY
- **Assistant Professor of Computer Science, September 2004 – August 2009**  
Dowling College, Department of Mathematics and Computer Science, Oakdale, NY
- **Graduate Course Instructor, January 2004 – May 2004**  
Stony Brook University, Department of Computer Science, Stony Brook, NY
- **Research Assistant / Software Engineer, June 1999 – August 2003**  
Stony Brook University, Department of Computer Science, Stony Brook, NY
- **Teaching Assistant, September 1998 – December 1998**  
Stony Brook University, Department of Computer Science, Stony Brook, NY
- **Research Assistant / Software Engineer, March 1997 – September 1998**  
Stony Brook University, Department of Computer Science, Stony Brook, NY

- **Research Assistant, May 1996 – September 1996**

Stony Brook University, Department of Computer Science, Stony Brook, NY

### **Awards and Honors**

- Honor Societies:
  - Phi Beta Kappa
  - Golden Key National Honor Society
  - Sigma Beta Honor Society
- Listing in 2006-2007 edition of *Strathmore's Who's Who*
- Fellowships:
  - Stony Brook University Graduate Council Fellowship
  - Federal GAANN Fellowship
- Winner, “Best Speaker Award,” Graduate Research Conference 2001, Department of Computer Science, Stony Brook University, April 6, 2001.
- Winner, “Best Speaker Award,” Graduate Research Conference 2000, Department of Computer Science, Stony Brook University, March 31, 2000.
- Two-time recipient of Honorable Mentions from National Science Foundation Fellowship Committee, 1998 and 1999.
- Graduate of Stony Brook University's Honors College.
- Graduated *summa cum laude* with double-major in Computer Science and Applied Mathematics (B.S.)
- Dean's List all semesters during undergraduate education.
- Received designation of AP Scholar with Distinction.
- Graduated in top 10 percent of high school graduating class.

### **Grants**

- Co-principal Investigator. “Robert Noyce Scholarship Program Phase II,” National Science Foundation, \$599,920. Awarded to Dowling College. June 1, 2009 – May 31, 2013.

### **Summary of Technical Qualifications**

- Broad range of expertise in the theory and application of 3D computer graphics and visualization.
- Conducted research in information and scientific visualization, geometric and physically based modeling, haptic interaction, volume visualization.

- Extensive programming experience in C/C++, Java, OpenGL. Experience with C#, .NET, VBA, MFC, STL, and others.
- Working knowledge of numerous operating systems (Windows, UNIX variants, Linux, Mac OS, etc.)
- Programming experience in many domains of computer science, including computer graphics, visualization, databases, compilers (flex, bison, etc.), networks, and others.

### **Courses Taught at Dowling College (except where noted)**

- CSC 1009: Introduction to Spreadsheets and Visual Basic for Applications (Fall 2006, 2008, 2009; Spring 2007)
- CSC 1012/1023: Introduction to Computer Science (Fall 2004, 2005, 2006, 2007, 2008, 2009, 2010; Spring 2005, 2006, 2007, 2008, 2009, 2010)
- CSC 1024: Introduction to Programming (Fall 2010; Spring 2005, 2006, 2007, 2008, 2009, 2010; Summer 2005)
- CSC 2025: Data Structures (Fall 2005, 2007, 2008)
- CSC 2060: Computer Organization (Fall 2007)
- CSC 2076: C++ Programming Language (Spring 2005)
- CSC 2078: Computer Graphics (Spring 2006, 2010)
- CSC 3080: Operating Systems (Spring 2007)
- CSC 3171: Algorithms (Fall 2004; Spring 2009)
- CSC 3174: Visualization (Spring 2008)
- CSC 4181: Special Topics in Computer Science: Scientific Visualization (Fall 2004)
- CSC 4181: Special Topics in Computer Science: C#.NET Programming (Fall 2009)
- CIS 3400: Business Data Communications (Fall 2010)
- CSE 564: Scientific Visualization (Spring 2004 at Stony Brook University)
- MTH 1003: Elements of Mathematics I (Fall 2007)
- MTH 3140: Numerical Analysis (Fall 2006)

### **Courses Developed or Revised**

- CSC 2030: Geometric Models for Computer Graphics
- CSC 2060: Computer Organization
- CSC 3070: Computer Architecture
- CSC 3174: Visualization
- CSC 3971 & CSC 3972: Advanced Programming I & II

- CSC 3981 & CSC 3982: Advanced Software Engineering I & II
- FYE 1041: Environmental Restoration: Brownfields to Greenfields

### **Committee Service**

- Chair, Academic Assessment and Research Committee (AARC), September 2009 – present
- Planning and Priorities Team (PPT), September 2009 – present
- Chair, Planning and Priorities Team Sub-committee on Academic Quality, September 2009 – present
- Faculty-Administration Senate, September 2009 – present
- Natural Science and Mathematics Faculty Development and Curriculum Committee, September 2009 – present
- Chair, Noyce Scholarship Selection Committee, September 2009 – present
- Member, Academic Assessment and Research Committee (AARC), September 2005 – August 2009
- AARC Subcommittee on Institutional Mission, Goals and Objectives, Spring 2008
- AARC Subcommittee on e-Portfolios, Spring 2007 – Fall 2007
- President's Future Curriculum Task Force, Spring 2006
- Human Subjects Research Committee (HSRC), Fall 2005 – Winter 2006

### **Faculty Search Committees**

- General Physical Scientist faculty search committee, Fall 2009
- Computer Information Systems faculty search committee, Fall 2008
- Chemistry faculty search committee, Fall 2005 – Spring 2006

### **Other Service to the Institution**

- Attended Middle States Commission on Higher Education workshop on assessment at the University of Delaware with Provost and others, January 27-29, 2008
- Worked with faculty in the Department of Visual Arts to develop a Minor in Computer Graphics, 2006
- Attended AAC&U General Education Conference at the Catholic University of America in Washington, D.C. with Provost and others, June 9-14, 2006
- Participated in Alpha Chi Honor Society induction, April 20, 2006

### **Student Recruitment and Orientation Events**

- Open Houses
  - April 24, 2010
  - November 21, 2009
  - April 25, 2009
  - November 1 & 22, 2008
  - April 10, 2005. As part of this event I taught a mini-course titled “So, You Want to Be a Computer Scientist?”
  - March 29, 2005
  - November 7, 2004
- New Student Orientations
  - August 19, 2008
  - January 22, 2008
  - August 27 & 31, 2007

### **Service to the Department**

- Chair, Department of Mathematics and Computer Science, Dowling College, September 2009 – present
- Revisions to Major in Computer Science. Worked extensively with colleagues in my department to make revisions and improvements to the Major, as well as develop new courses for the Major, 2006 – 2007

### **Service at Prior Institution (Stony Brook University)**

- Graduate student mentor for incoming graduate students in the Department of Computer Science at Stony Brook University, 1999 – 2002
- Stony Brook University Department of Computer Science Academic Grievance Committee, 2001
- Coordinator for weekly Seminar in Geometric Modeling and Physical Simulation, Department of Computer Science, Stony Brook University, 1999
- Stony Brook University Undergraduate Recognition Awards Committee, 1998

### **Service to the Profession**

- Membership in:
  - Association for Computing Machinery (ACM)
  - ACM Special Interest Group on Computer Graphics and Interactive Techniques
  - ACM Special Interest Group on Computer Science Education

- Computer Science Teachers Association (CSTA)
- Long Island chapter of CSTA (founding member)
- Computer Society of the Institute for Electrical and Electronics Engineers
- Eurographics
- Member of international program committee for:
  - Shape Modeling International Conference 2010
  - International Conference on Computer Animation and Social Agents 2008
  - IEEE International Conference on Shape Modeling and Applications 2008
  - CAD/Graphics 2007
- Member of papers committee for:
  - 23rd Annual Consortium for Computing Sciences in Colleges – Eastern Conference, 2007
- Conference paper reviewer for:
  - ACM Conference on Human Factors in Computing Systems
  - ACM SIGGRAPH
  - ACM Symposium on Interactive 3D Graphics
  - ACM Symposium on Solid Modeling and Applications
  - ACM Symposium on User Interface Software and Technology
  - Eurographics Annual Conference
  - Eurographics Workshop on Computer Animation and Simulation
  - IEEE International Workshop on Volume Graphics
  - IEEE/SIGGRAPH Symposium on Volume Visualization and Graphics
  - IEEE Virtual Reality
  - IEEE Visualization
  - International Conference on Computer-Aided Design and Computer Graphics
- Journal paper reviewer for:
  - *Graphical Models*
  - *IEEE Computer Graphics & Applications*
  - *IEEE Transactions on Automation Science and Engineering*
  - *IEEE Transactions on Haptics*
  - *IEEE Transactions on Systems, Man & Cybernetics, Part A: Systems and Humans*
  - *IEEE Transactions on Visualization and Computer Graphics*
  - *International Journal of Biomedical Imaging*

- *Journal of Computing Sciences in Colleges*

### **Service to the Community**

- Webmaster for St. James R. C. Church ([www.stjamessetauket.org](http://www.stjamessetauket.org)), June 2009 – present
- Spoke with 8th graders at Hauppauge Middle School Career Café about careers in Computer Science, May 15, 2008
- Taught guest lesson on Computer Science in Dr. Marty Mizel's science class, The Laurel Hill School, East Setauket, NY, January 10, 2008
- Taught guest lesson on computer graphics at Mrs. Kathy Vargas's computer science class, Archbishop Molloy High School, Briarwood, Queens, NY, January 16, 2007

### **Academic Advisement**

- Co-advisor of Dowling College's Computer Club, Fall 2004 – Spring 2008
- Head Coach of Dowling College's Programming Team, Fall 2007 – Summer 2009
- Assistant Coach of Dowling College's Programming Team, Fall 2004 – Fall 2007, Fall 2009 – present
- Advising Day events:
  - April 7, 2010
- Attended programming contests with Dowling students at:
  - Hofstra University, October 18, 2009 (ACM contest): seven students attended
  - St. Joseph's College, October 26, 2008 (ACM contest): six students attended
  - Kean University, November 4, 2007 (ACM contest): eleven students attended
  - St. Joseph's College, October 13, 2007 (CCSC-E contest): eight students attended
  - Nassau Community College, October 29, 2006 (ACM contest): nine students attended
  - Kean University, November 20, 2005 (ACM contest): eleven students attended
  - Iona College, November 14, 2004 (ACM contest): nine students attended
- Internships Supervised:
  - Elena Zlateva, Island Business Group, Fall 2008
  - Kostadin Mitev, Intelligent Search Technology, Ltd., Summer 2005
- Independent Studies Supervised:
  - Richard Abrahall, *Financial Modeling in C++*, Fall 2008
  - Isaac Awuah Asiamah, *Difference Equations Program*, Spring 2006
  - Joseph Dalton, *Database Programming with Java*, Spring 2008

- Huan Hu, *3D Splines Surfaces*, Spring 2008
- John Jemilawon, *Database Programming with Visual Basic*, Spring 2008
- Petko Kamburov, *Advanced Programming in C# with SQL Support*, Fall 2008
- Petko Kamburov, *Advanced Database Programming*, Fall 2009
- Ashok Maharjan, *Database Management with Java*, Fall 2008
- Ashok Maharjan, *Web Development with PHP*, Spring 2009
- Dane Newman, *Graph Algorithms*, Fall 2005
- Daniel O'Brien, *Advanced Database Programming*, Fall 2009
- Elena Zlateva, *Java Solutions for Small Business*, Fall 2008
- Elena Zlateva, *Advanced Database Programming*, Fall 2009

### Peer-Reviewed Journal Articles

1. Taina D. Matos, Nacole King, Lauren Simmons, Charmaine Walker, Aliecia R. McClain, Anil Mahapatro, Fred J. Rispoli, Kevin T. McDonnell, and Vishal Shah. "Microwave Assisted Lipase Catalyzed Solvent Free Poly-ε-Caprolactone Synthesis." *Green Chemistry Letters and Reviews*, in press, 2010.
2. Lujin Wang, Joachim Giesen, Kevin T. McDonnell, Peter Zolliker and Klaus Mueller. "Color Design for Illustrative Visualization." *IEEE Transactions on Visualizations and Computer Graphics* (Special Issue on *Proceedings of IEEE Visualization 2008*), 14(6):1739-1754, 2008.
3. Kevin T. McDonnell and Klaus Mueller. "Illustrative Parallel Coordinates." *Computer Graphics Forum* (Special Issue on *Proceedings of the Joint Eurographics/IEEE-TCVG Symposium on Visualization (EuroVis 2008)*), 27(3):1031-1038, 2008.
4. Jeffrey J. Feuer and Kevin T. McDonnell. "On the Eventual Periodicity of  $x_{n+1} = \max\left\{\frac{1}{x_n}, \frac{A_n}{x_{n-1}}\right\}$  with a Period-five Parameter." *Computers and Mathematics with Applications*, 56(4):883-890, 2008.
5. Lori Zaikowski, Kevin T. McDonnell, Robert F. Rockwell and Fred Rispoli. "Temporal and Spatial Variations in Water Quality on New York South Shore Estuary Tributaries: Carmans, Patchogue, and Swan Rivers." *Estuaries and Coasts*, 31:85-100, 2008.
6. Kevin T. McDonnell and Hong Qin. "PB-FFD: A Point-based Technique for Free-Form Deformation." *Journal of Graphics Tools*, 12(3):25-41, 2007.
7. Kevin T. McDonnell and Hong Qin. "A Novel Framework for Physically Based Sculpting and Animation of Free-form Solids." *The Visual Computer*, 23(4):285-296, 2007.
8. Kevin T. McDonnell, Yu-Sung Chang and Hong Qin. "DigitalSculpture: A Subdivision-based Approach to Interactive Implicit Surface Modeling." *Graphical Models*, 67(4):347-369, 2005.

9. Kevin T. McDonnell, Yu-Sung Chang and Hong Qin. "Interpolatory, Solid Subdivision of Unstructured Hexahedral Meshes." *The Visual Computer*, 20(6):418-436, 2004.
10. Kevin T. McDonnell and Hong Qin. "Dynamic Sculpting and Animation of Free-form Subdivision Solids." *The Visual Computer*, 18(2):81-96, 2002. (Invited paper)

### Peer-Reviewed Conference Papers

1. Kevin T. McDonnell, Neophytos Neophytou, Klaus Mueller and Hong Qin. "Subdivision Volume Splatting." In *Proceedings of the Joint Eurographics / IEEE-TCVG Symposium on Visualization (EuroVis 2007)*, pages 139-146, May 2007.
2. Neophytos Neophytou, Klaus Mueller, Kevin T. McDonnell, Wei Hong, Xin Guan, Hong Qin and Arie Kaufman. "GPU-Accelerated Volume Splatting With Elliptical RBFs." In *Proceedings of the Joint Eurographics / IEEE-TCVG Symposium on Visualization (EuroVis 2006)*, pages 13-20, May 2006.
3. Hui Xie, Kevin T. McDonnell and Hong Qin. "Surface Reconstruction of Noisy and Defective Data-Sets." In *Proceedings of IEEE Visualization 2004*, pages 259-266, October 2004.
4. Yu-Sung Chang, Kevin T. McDonnell and Hong Qin. "An Interpolatory Subdivision for Volumetric Models over Simplicial Complexes." In *Proceedings of the Fifth International Conference on Shape Modeling and Applications*, pages 143-152, May 2003.
5. Kevin T. McDonnell and Hong Qin. "Virtual Clay: Haptics-based Deformable Solids of Arbitrary Topology." In *Proceedings of the Second International Workshop on Articulated Motion and Deformable Objects, Lecture Notes in Computer Science*, Springer-Verlag, pages 1-20, November 2002. (Invited paper)
6. Yu-Sung Chang, Kevin T. McDonnell and Hong Qin. "A New Solid Subdivision Scheme Based on Box Splines." In *Proceedings of the Seventh ACM Symposium on Solid Modeling and Applications*, pages 226-233, 2002.
7. Kevin T. McDonnell and Hong Qin. "FEM-based Subdivision Solids for Dynamic and Haptic Interaction." In *Proceedings of the Sixth ACM Symposium on Solid Modeling and Applications*, pages 312-313, June 2001.
8. Kevin T. McDonnell, Hong Qin and Robert A. Wlodarczyk. "Virtual Clay: A Real-time Sculpting System with Haptic Toolkits." In *Proceedings of the 2001 ACM Symposium on Interactive 3D Graphics*, pages 179-190, March 2001.
9. Ingmar Bitter, Mie Sato, Michael Bender, Kevin T. McDonnell, Arie Kaufman, and Ming Wan. "CEASAR: A Smooth, Accurate and Robust Centerline Extraction Algorithm." In *Proceedings of IEEE Visualization 2000*, pages 45-52, October 2000.
10. Kevin T. McDonnell and Hong Qin. "Dynamic Sculpting and Animation of Free-form Subdivision Solids." In *Proceedings of IEEE Computer Animation 2000*, pages 126-133, May 2000. Selected as the best paper in the conference.

11. Xiaoqun Du, Kevin T. McDonnell, Evangelos Nanos, Y. S. Ramakrishnan, and Scott A. Smolka. "Software Design, Specification, and Verification: Lessons Learned from the RETHER Case Study." In *Proceedings of the Sixth International Conference on Algebraic Methodology and Software Technology*, Sydney, Australia, Lecture Notes in Computer Science, Springer-Verlag, pages 185-198, December 1997.

### **Magazine Articles, Conference Posters, Technical Reports and Other Documents**

1. Klaus Mueller, Supriya Garg, Julia EunJu Nam, Tamara Berg and Kevin T. McDonnell. "Can Computers Master the Art of Communication? An Excursion with a Focus on Visual Analytics." *IEEE Computer Graphics and Applications*, 2010, to appear.
2. Lori Zaikowski, Kevin T. McDonnell and Daniel Ness. "NSF Robert Noyce Scholarship Program at Dowling College." Robert Noyce Teacher Scholarship Program Annual Conference: Building Excellence in STEM Teaching, Washington, D.C., July 7-9, 2010.
3. Hyunjung Lee, Julia EunJu Nam, Kevin T. McDonnell and Klaus Mueller. "Statistics-Informed Parallel Coordinates." CEWIT 2009 Annual Conference, Stony Brook, NY, October 1, 2009.
4. Taina D. Matos, Nacole King, Lauren Simmons, Charmaine Walker, Aliecia R. McClain, Anil Mahapatro, Fred J. Rispoli, Kevin T. McDonnell, and Vishal Shah. "Mixture Design to Optimize Microwave Assisted Lipase Catalyzed Polymerizations." 238th American Chemical Society National Meeting held at Washington, DC from August 16-20, 2009.
5. Kevin T. McDonnell and Klaus Mueller. "Illustrative Parallel Coordinates: A More Effective Means to Glean Insight from High-Dimensional Data." CEWIT 2008 Annual Conference, Stony Brook, NY, October 16, 2008.
6. Neophytos Neophytou, Kevin T. McDonnell, and Klaus Mueller. "On the simplification of radial basis function fields for volume rendering: some practical insights." Stony Brook University, Department of Computer Science Technical Report, June 2006.
7. Kevin T. McDonnell. "DYNASOAR: DYNAMIC Solid Objects of ARbitrary topology." Ph.D. Dissertation, Department of Computer Science, Stony Brook University, August 2003.
8. Kevin T. McDonnell. "DYNASOAR: DYNAMIC Solid Objects of ARbitrary topology." Thesis Proposal, Department of Computer Science, Stony Brook University, December 2002.
9. Kevin T. McDonnell, Hong Qin and Robert A. Wlodarczyk. "Virtual Clay: A Real-time, Haptics-based Sculpting System." In *Proceedings of Graduate Research Conference 2001*, Department of Computer Science, Stony Brook University, Stony Brook, NY, April 2001. Won best paper/presentation award.
10. Kevin T. McDonnell. "Dynamic Subdivision-based Solid Modeling." Research Proficiency Examination, Department of Computer Science, Stony Brook University, December 2000.
11. Kevin T. McDonnell. "OSP: An Environment for Operating System Projects." Honors College Senior Thesis, Stony Brook University, May 1998.

## Professional Presentations and Panels

- “LISTnet Panel: Information Technology 101 – A Report Card.” Represented the discipline of Computer Science from an academic perspective. Dowling College, Oakdale, NY, June 3, 2010.
- “Illustrative Parallel Coordinates,” Joint Eurographics / IEEE-TCVG Symposium on Visualization (EuroVis 2008), Eindhoven, Netherlands, May 28, 2008.
- “Subdivision Volume Splatting,” Joint Eurographics / IEEE-TCVG Symposium on Visualization (EuroVis 2007), Norrköping, Sweden, May 24, 2007.
- “A Primer on Scientific Visualization,” Department of Mathematics and Computer Science, Dowling College, Oakdale, NY, April 23, 2004.
- “DYNASOAR: DYNAMIC Solid Objects of ARbitrary topology,” Ph.D. Dissertation defense, Department of Computer Science, Stony Brook University, Stony Brook, NY, August 5, 2003.
- “DYNASOAR: DYNAMIC Solid Objects of ARbitrary topology.” Thesis Proposal, Department of Computer Science, Stony Brook University, Stony Brook, NY, December 2, 2002.
- “FEM-Based Subdivision Solids for Dynamic and Haptic Interaction,” Sixth ACM Symposium on Solid Modeling and Applications, Ann Arbor, MI, June 7, 2001.
- “Virtual Clay: A Real-Time, Haptics-Based Sculpting System.” Graduate Research Conference 2001, Department of Computer Science, Stony Brook University, Stony Brook, NY, April 6, 2001. Won Best Speaker Award.
- “Virtual Clay: A Real-Time Sculpting System with Haptic Toolkits,” 2001 ACM Symposium on Interactive 3D Graphics, Research Triangle Park, NC, March 21, 2001.
- “Dynamic Subdivision-Based Solid Modeling.” Research Proficiency Examination. Department of Computer Science, Stony Brook University, Stony Brook, NY, December 11, 2000.
- “Dynamic Sculpting and Animation of Free-Form Subdivision Solids.” IEEE Computer Animation 2000, Philadelphia, PA, May 5, 2000.
- “Playing with Virtual Clay.” Graduate Research Conference 2000, Department of Computer Science, Stony Brook University, Stony Brook, NY, March 31, 2000. Won Best Speaker Award.
- “Real-Time Deformation and Manipulation of Mass-Spring and B-Spline Volumes through Haptic Interaction.” Graduate Research Conference 1999, Department of Computer Science, Stony Brook University, Stony Brook, NY, May 25, 1999.
- “OSP: An Environment for Operating System Projects.” Honors College Senior Thesis, Stony Brook University, Stony Brook, NY, April 23, 1998.