

Janine Camille Bennett

1191 Hillcrest Avenue, Livermore CA 94550

tel: 530.304.2033 email: jcbenne@sandia.gov web: <http://www.janinebennett.org/>

Career Objective Advance the state of the art in data analysis and visualization research while developing software tools that contribute to the solution of practical problems in science discovery and information understanding.

Research Interests Scientific Visualization, Data Analysis, Mesh Parameterization, Computational Geometry, Combinatorial Topology, Material Boundaries, Feature Segmentation, Vector Field Analysis, Uncertainty Quantification

Education

12/2008	Ph.D. Computer Science	University of California, Davis Focus: Computer Graphics (primary), Computer Theory (secondary) GPA: 3.75
3/2004	M.S. Computer Science	University of California, Davis Focus: Computer Graphics (primary), Computer Theory (secondary) GPA: 3.75
6/2000	B.S. Eng. Computer Science <i>with honors</i> Minors: Math & Spanish	University of California, Davis GPA: 3.47

Professional Experience

1/2009 - Present	Senior Member of the Technical Staff	Sandia National Lab Developing and implementing new topological and statistical techniques to characterize features in petascale turbulent combustion simulation data.
9/2004 - 9/2008	Lawrence Scholar	Lawrence Livermore National Lab Designed new algorithms and data structures and implemented software to robustly cross-parameterize meshes of arbitrary and differing genus using tools from Morse theory.
9/1998 - 9/2004	Research Assistant – CIPIC/IDAV	University of California, Davis Designed new algorithms and data structures and implemented software in several areas of computer graphics including: visualization of paleo-magnetic vectors in 3D, material boundaries, topological analysis of vector fields, and surface smoothing.
1/2001 - 12/2001	Teaching Assistant C++ Programming	University of California, Davis Collaborated on curriculum and exam development, project specifications and graded exams. Held regular office hours and taught discussion sections.
6/2003 - 9/2003	Scientist/Engineering Technical Scholar	Lawrence Livermore National Lab Designed and implemented an algorithm that generates a convex mapping for volumetric meshes with non-convex boundaries.
6/2001 - 9/2001	Scientist/Engineering Technical Scholar	Lawrence Livermore National Lab Developed a kd-partitioning algorithm for use on massive data sets along with MPI code to transfer the partitioned data sets between nodes of a Linux cluster.
6/2000 – 12/2000	Scientist/Engineering Technical Scholar	Lawrence Livermore National Lab Parallelized a volume renderer using Pthreads for use on a 48-Processor SGI Onyx2 with 8 Infinite Reality pipes running IRIX 6.5.7.

Honors and Awards

2004 - 2008	Lawrence Scholar	Lawrence Livermore National Lab
2001 - 2004	GAANN Fellowship	University of California, Davis
1995 - 2000	Regent's Scholarship	University of California, Davis
1995	Edward Frank Kraft Scholarship	University of California, Davis
1999 – Present	Tau Beta Pi	National Engineering Honor Society

Skills	<ul style="list-style-type: none"> - Programming Languages: C/C++, MATLAB, Python - Tools/APIs: Visual Studio, Perforce, MATLAB, OpenGL, STL, GLUT, FLTK, Pthreads, MPI, VTK - Operating Systems: Windows, Linux, Unix - Proficient in Spanish 										
Professional Memberships	<ul style="list-style-type: none"> - Institute of Electrical and Electronics Engineers (IEEE) - Association for Computing Machinery (ACM) 										
Professional Service	<table border="0"> <tr> <td>Paper Reviews</td> <td> <ul style="list-style-type: none"> - Symposium on Computational Geometry 2007 - IEEE Visualization Conference 2006 </td> </tr> <tr> <td>Panel</td> <td> <ul style="list-style-type: none"> - “Gearing up for Grad School”, University of California Davis 2006 </td> </tr> <tr> <td>Committees</td> <td> <ul style="list-style-type: none"> - Visualization and Graphics Group Visibility Committee 2005 - Sandia Women’s Committee </td> </tr> <tr> <td>Leadership</td> <td> <ul style="list-style-type: none"> - Student Representative to UC Davis Computer Science Department 2000 </td> </tr> <tr> <td>Student Volunteer</td> <td> <ul style="list-style-type: none"> - ACM SIGGRAPH 1999 & 2000 </td> </tr> </table>	Paper Reviews	<ul style="list-style-type: none"> - Symposium on Computational Geometry 2007 - IEEE Visualization Conference 2006 	Panel	<ul style="list-style-type: none"> - “Gearing up for Grad School”, University of California Davis 2006 	Committees	<ul style="list-style-type: none"> - Visualization and Graphics Group Visibility Committee 2005 - Sandia Women’s Committee 	Leadership	<ul style="list-style-type: none"> - Student Representative to UC Davis Computer Science Department 2000 	Student Volunteer	<ul style="list-style-type: none"> - ACM SIGGRAPH 1999 & 2000
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Refereed Publications	<ul style="list-style-type: none"> - Janine Bennett, Philippe Pébay, Diana Roe, David Thompson “Numerically Stable, Single Pass, Parallel Statistics Algorithms”, to appear in Proceedings of IEEE Cluster 2009. - Janine Bennett, Valerio Pascucci, Kenneth Joy, “A Genus Oblivious Approach to Cross Parameterization”, in Computer Aided Geometric Design, Volume 25, September 2008, pg. 592-606. - Janine Bennett, Valerio Pascucci, Kenneth Joy, “Genus Oblivious Cross Parameterization: Robust Topological Management of Intersurface Maps”, in Proceedings of Pacific Graphics 2007, pg 238-247. - John C. Anderson, Janine Bennett, Kenneth I. Joy, “Marching Diamonds for Unstructured Meshes”, in Proceedings of IEEE Visualization 2005, pg. 423-429. - Karim Mahrous, Janine Bennett, Gerik Scheuermann, Bernd Hamann, Kenneth I. Joy, “Topological Segmentation in Three-Dimensional Vector Fields”, in IEEE Transactions on Visualization and Computer Graphics, Volume 10, Number 2, March/April 2004, pg. 198-205. - Janine Bennett, Karim Mahrous, Bernd Hamann, Kenneth I Joy, “A Segmentation Approach to Scientific Visualization”, in Proceedings of the ACM Spring Conference in Computer Graphics, 2003, pg. 9-16. - Karim Mahrous, Janine Bennett, Bernd Hamann, Kenneth I. Joy, “Improving Topological Segmentation of Three-Dimensional Vector Fields”, in Proceedings of the ACM Symposium on Data Visualization 2003, pg. 203-212. - Janine Bennett, Richard Cook, Nelson Max, Deborah May, and Peter Williams, “Parallelizing a High Accuracy Hardware-Assisted Volume Renderer for Meshes with Arbitrary Polyhedra”, in Proceedings of the IEEE Symposium on Parallel and Large Data Visualization and Graphics, 2001, pg. 150-156. 										
Technical Reports	<ul style="list-style-type: none"> - David Thompson, Ray Grout, Nathan Fabian, and Janine Bennett, “Detecting Combustion and Flow Features In Situ Using Principal Component Analysis”, Technical Report SAND2009-2017, Sandia National Laboratories, Apr. 2009. - Janine Bennett, Philippe Pébay, Diana Roe, and David Thompson, “Scalable multi-correlative statistics and principal component analysis with Titan”, Technical Report SAND2009-1687, Sandia National Laboratories, Mar. 2009. 										
Open Source Software	<table border="0"> <tr> <td>VTK at http://www.vtk.org:</td> <td> <ul style="list-style-type: none"> - vtkPPCStatistics: a parallel Principal Component Analysis class. - vtkKMeansStatistics: a KMeans clustering class. - vtkPKMeansStatistics: a parallel KMeans clustering class. </td> </tr> </table>	VTK at http://www.vtk.org :	<ul style="list-style-type: none"> - vtkPPCStatistics: a parallel Principal Component Analysis class. - vtkKMeansStatistics: a KMeans clustering class. - vtkPKMeansStatistics: a parallel KMeans clustering class. 								
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Posters	<ul style="list-style-type: none"> - Janine Bennett, Valerio Pascucci, Kenneth Joy, “Robust Topological Management of Domain Meshes”, Lawrence Livermore National Laboratory Student-Employee Graduate Research Fellowship Symposium, Sept. 2007. 										

- Janine Bennett, Valerio Pascucci, Kenneth Joy, "Parameterization and Morphing of 2-Manifold Meshes of Arbitrary Genus", Lawrence Livermore National Laboratory Student-Employee Graduate Research Fellowship Symposium, Sept. 2006.
 - Janine Bennett, Valerio Pascucci, Kenneth Joy, "Parameterization of 2-Manifold Meshes of Arbitrary Genus with Generalization to Higher Dimensions", Lawrence Livermore National Laboratory Student-Employee Graduate Research Fellowship Symposium, Sept. 2005.
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References

Professor Valerio Pascucci

Professor of Computer Science at University of Utah

tel: 801.587.9885 email: pascucci@acm.org web: <http://www.pascucci.org/>

Professor Kenneth Joy

Professor of Computer Science at University of California, Davis

tel: 530.752.1077 email: kijoy@ucdavis.edu web: <http://graphics.cs.ucdavis.edu/~joy/>

Kim Reinking

Student Affairs Officer in the Department of Engineering, University of California, Davis

tel: 530.752.0557 email: kcreinking@ucdavis.edu