News & Notes
from Sitterson Hall

**The University of North Carolina at Chapel Hill
Department of Computer Science**

In this issue

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Welcomes and Farewells

NEW FACULTY APPOINTMENTS
Svetlana Lazebnik, assistant professor of computer science. Svetlana holds a Ph.D. from the University of Illinois at Urbana-Champaign and does research in the area of computer vision.

Michael Reiter (B.S. M.Sci. 1989), Lawrence M. Slifkin Professor of Computer Science. Michael holds a Ph.D. from Cornell University and is a leading researcher in the area of computer security.

NEW STAFF APPOINTMENTS
Dawn Andres, who joined the department as travel coordinator in

Chairman's corner

As the fall 2007 semester draws to a close, we in the department of computer science find ourselves at a most exciting juncture in the history of the department.

The new building construction remains on schedule to open by the fall semester 2008. A generous donation from an anonymous former student has secured the naming rights for the Frederick P. Brooks, Jr. Computer Science Building. Fund raising continues, but it is truly a pleasure to have reached this critical milestone through the generosity of this special donor and others among you who have supported the department with your gifts thus far - your help is truly appreciated. We hope to hold a dedication ceremony in fall 2008, soon after the opening, and we will share the details with you all as they become available.

I would like to extend a warm welcome to our newest assistant professor, Svetlana Lazebnik. Lana's area of interest is computer vision. She joins us from the University of Illinois at Urbana-Champaign, where she earned her Ph.D. and was working as a postdoctoral researcher. We are very pleased to have her as a member of our faculty.

Congratulations to Associate Professor Wei Wang, who received a Hettleman Prize earlier this year. The award recognizes young faculty at Carolina for artistic and scholarly achievement.

Congratulations also to Ph.D. student Brad Davis, who received the prestigious Marr Prize for best paper at the International Conference on Computer Vision held in October of this year. As a Marr Prize winner, Brad is a member of an elite group - only 16 other papers have been honored with the prize since its inception in 1987. Congratulations also to the paper's co-authors: alumnus Tom Fletcher and adjunct faculty members Elizabeth Bullitt and Sarang Joshi.

We hope to see you in 2008. Please stop by Sitterson Hall if you are in the area and take a look at the changes for yourself!

Jan F. Prins

May 2007. Dawn was previously with the University travel office.

Ginny Turner, who has been hired to work with Henry Fuchs, Greg Welch, Andrei State and Herman Towles as an administrative assistant and project manager. Ginny joined the computer science staff in October 2007.

Whitney Vaughan, who was hired as an academic support specialist in June 2007.

VISITING RESEARCHERS
Hyeong-Seok Ko, a visiting scholar working with Ming Lin. Hyeong-Seok is an associate professor in the School of Electrical Engineering and the director of the Graphics & Media Lab at Seoul National University.

Peng Ning, a visiting scholar working with Michael Reiter in the area of computer security. Peng is an associate professor at North Carolina State University.

Min Tang, a visiting scholar working with Dinesh Manocha. Min is performing research on geometric designs, interactive computer graphics and general-purpose applications of graphics processing units (GPUs).

Jur van den Berg, a postdoctoral research associate visiting Dinesh Manocha. Jur holds a Ph.D. in Computer Science from Universiteit Utrecht, Utrecht, The Netherlands.

THANKS AND FAREWELL TO…

Anna Bulysheva, research associate working with the Liver RFA project, who left in July to head to graduate school at Virginia Commonwealth University, where she is working toward her Ph.D. in biomedical engineering.

William Jiang, systems administrator, who left in August 2007 to join UNC's Information Technology Services as a systems specialist for the Windows Infrastructure group.

Vivek Kwatra, postdoctoral researcher working with Ming Lin, who left in June 2007 to join Google Research.

Philippos Mordohai, postdoctoral researcher working with Marc Pollefeys, who left in July 2007 to accept a postdoctoral position at the University of Pennsylvania.

Susan Paulsen, postdoctoral research associate, who left at the end of October 2007.

Audrey Rabalais, administrative assistant to Dr. Frederick P. Brooks, who left in May 2007.

Avneesh Sud (Ph.D. 2007), postdoctoral researcher working with Dinesh Manocha, who left in July 2007 to join Microsoft.

Congratulations to…

FACULTY AND STAFF
Andrea Bunn and **Sandra Neely**, who were both promoted to Accounting Technician III's in October 2007.

Alan Forrest, who was promoted to Systems Specialist in the Desktop Support Group.

Jan-Michael Frahm, who was named Research Assistant Professor. Jan-Michael joined the department as a postdoctoral researcher working with Marc Pollefeys in August 2005.

Janet Jones, who was promoted to Student Services Manager I in November 2006.

Ming C. Lin, who was named Beverly W. Long Distinguished Professor, effective July 2007.

Catherine Perry, who was promoted to Accounting Specialist I in October 2007.

Montek Singh, who was promoted to Associate Professor with tenure as of July 1, 2007.

Senior Lecturer **Jeannie Walsh**, who recently received the 2007 Orange County Disability Awareness Council's "Distinguished Service Award."

GRADUATE STUDENTS
Ph.D. student **Bradley Davis**, who, along with co-authors **Tom Fletcher** (Ph.D. 2004), **Sarang Joshi** and **Elizabeth Bullitt**, received the Marr Prize for best paper at the IEEE International Conference on Computer Vision, 2007. You can read more about Brad's award on page 5.

August 2006 M.S. Recipients
David Knott, Qi Zhang.

December 2006 M.S. Recipients
Thomas Russell Gayle, Patrick Jacob Quirk, Brian Paul Salomon, Jeremy Daniel Wendt.

May 2007 M.S. Recipients
Ashish Awasthi, Suddha Kalyan Basu, Craig Jason Bennetts, Vinay Kumar Reddy Bondhugula, Agam Brahma, Brian Clinton Cornell, Casey B. Goodlett, Kevin Daniel Gorczowski, Julia Haven Grace, Florian C. Gyarfas, John Broscoff Hansen, Ja Yeon Jeong, Srinivas Krishnan, Ping Lu, John Leon Mason, Paul Richard Mecklenburg, Ipek Oguz, Stephen Lecler Olivier,

Tabitha Peck, Kiranjit Singh Sidhu, Justin Daniel Steffy, Jeffrey S. Terrell, Timothy Alan Thirion, Chen Wang, Xueyi Wang, David Wayne Williams, Kirstin Lyn Williams.

December 2006 Ph.D. Recipients
Umamaheswari Devi. *Soft Real-Time Scheduling on Multiprocessors.*
Advisor: James Anderson.

Jun (Luke) Huan. *Graph-based Pattern Discovery in Protein Structures.*
Advisors: Jan Prins and Wei Wang.

Andrew Leaver-Fay. *Capturing Atomic Interactions with a Graphical Framework in Computational Protein Design.* Advisor: Jack Snoeyink.

Jinze Liu. *New Clustering Approaches for Mining Salient Patterns in High Dimensional Data.*
Advisor: Wei Wang.

Avneesh Sud. *Efficient Computation of Discrete Voronoi Diagram and Homotopy-Preserving Simplified Medial Axis of 3D Polyhedron.*
Advisor: Dinesh Manocha.

Timothy B. Terriberry. *Continuous Medial Models in Two-Sample Statistics of Shape.*
Advisor: Guido Gerig.

Chris Weigle. *Displays for Exploration and Comparison of Nested or Intersecting Surfaces.*
Advisor: Russell M. Taylor.

May 2007 Ph.D. Recipients
Eric Paul Bennett. *Computational Video Enhancement.*
Advisor: Leonard McMillan.

David Morrison Borland. *Flexible Occlusion Rendering for Improved Views of Three-Dimensional Medical Images.*
Advisor: Russell M. Taylor.

Eric Burns. MACBETH: *Management of Avatar Conflict By Employment of a Technique Hybrid.*
Advisor: Frederick Brooks.

Justin Aaron Hensley. *Increasing Rendering Performance of Graphics Hardware.*
Advisors: Anselmo Lastra and Montek Singh.

Guodong Liu. *A Data-driven, Piecewise Linear Approach to Modeling Human Motions.* Advisor: Leonard McMillan.

Marcelinus Widita Prastawa. *An MRI Segmentation Framework for Brains with Anatomical Deviations.* Advisor: Guido Gerig.

Joshua Eli Steinhurst. *Practical Photon Mapping in Hardware.* Advisor: Anselmo Lastra.

August 2007 Ph.D. Recipients
B. Danette Allen. *Hardware Design Optimization for Human Motion Tracking Systems.* Advisor: Greg Welch.

**Greg Coombe.** *Practical Surface Light Fields.* Advisor: Anselmo Lastra.

UNDERGRADUATE STUDENTS

December 2006 B.S. Recipients
Andrew Thomas Hartsell, Erin Joanne Husson, Stephen T. Overcash, Rabia Shakoor.

May 2007 B.S. Recipients
Erik Lawrence Andersen**, Travis James Cagney, Corey Michael Davis, Garrett Lee Davis, YuanYuan Duan, Joel A. Feiner, Joshua Ryan Hilton, Benjamin Samuel Jacobs, Kristopher Scott Jordan*, Philip Watson Kelley*, Jameson Fitzpatrick

Lopp, Charles Patrick Reynolds, Adam Joseph Roberts**, Edward Lincoln Rowe, Christina Rae Salmi, Michael Clark Stewart, Joel Thomas Sutherland*, Brian Michael Sweeney, Dustin Tsang, Aditya Unnithan*, Douglas Scott Williams.

*With Honors **With Highest Honors

Four teams of undergraduate students participated in this year's ACM Regional Programming Contest, held on October 27. The teams from UNC, along with teams from 13 other schools, competed at Duke, and nearly 140 teams competed in the region overall. The team "Big Endian," consisting of **Tao Xie**, **Lynda Yang** and **Zach Mullen**, got top honors by coming in second at the Duke site and fifth in the region. Other teams that participated were: Divide & Conquer Canadian Sun - **Zack Sheffield**, **Jacob Bartel** and **Brian Louden**; predaKons - **Sam Brice**, **Chris Barefoot** and **Jiemin Zeng**; and the all freshman team Token Power - **Maggie Zhou**, **Max Beckman-Harned** and **Ben Hawks**. Congratulations to all the participants!
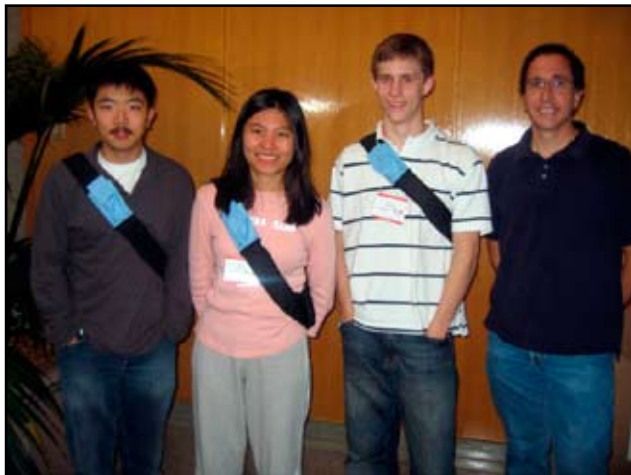
The team "Big Endian" placed second locally and fifth regionally in the annual ACM Regional Programming Contest. Pictured from left to right: Tao Xie, Lynda Yang and Zach Mullen, along with team coach Kevin Jeffay.

ALUMNI FELLOWSHIP RECIPIENT

Aaron Block (M.S. 2005) is the recipient of the Fall 2007 Computer Science Alumni Fellowship. The fellowship is awarded annually to a Ph.D. candidate in his or her final year of study, allowing the student to work full time on dissertation research. Generous contributions by alumni and friends help to make this fellowship possible.

Aaron is pursuing a dissertation under the supervision of Prof. James H. Anderson. Aaron's research involves adaptive real-time systems implemented on multiprocessor platforms. Many applications exist today that both require such a platform and have timing constraints that must be satisfied to provide an acceptable quality of service. Furthermore, such timing constraints often are not fixed, but may change at run time. Aaron's research is aimed at constructing multiprocessor scheduling algorithms that can cope with such changes. He has developed several such algorithms and is currently evaluating them empirically using real-time graphics applications developed at UNC as test workloads.

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Block, A., J. Anderson and U. Devi. "Task Reweighting under Global Scheduling on Multiprocessors," Proc. of the 18th Euromicro Conference on Real-Time Systems, pp. 128-138, July 2006.

Borland, D. and R. M. Taylor II, "Rainbow Color Map (Still) Considered Harmful," IEEE Computer Graphics and Applications, 27 (2), pp. 14-17, March 2007.

Bouzarth, E. L., A. Brooks, R. Camassa, J. Hao, T. J. Leiterman, R. M. McLaughlin, R. Superfine, J. Toledo and L. Vicci (2007). "Epicyclic Orbits in a Viscous Fluid About a Precessing Rod: Theory and Experiments at the Micro- and Macro-scales." Physical Review E, 76, 016313, 2007.

Brooks, Jr., F. P. "Software and Systems Management - Chapter 7 Summary," Software Engineering: The Legacy of Barry W. Boehm, R. Selby, ed., New York: John Wiley & Sons Inc., May 2007.

Brandenburg, B., and J. Anderson. "Integrating Hard/Soft Real-Time Tasks and Best Effort Jobs on Multiprocessors," Proc. of the 19th Euromicro Conference on Real-Time Systems, pp. 61-70, July 2007.

Burns, E., S. Razzaque, M. C. Whitton, F. P. Brooks, Jr., "MACBETH: Management of Avatar Conflict by Employment of a Technique Hybrid," International Journal of Virtual Reality, 6 (2), pp. 11-20, June 2007.

Calandrino, J., D. Baumberger, T. Li, S. Hahn and J. Anderson. "Soft Real-Time Scheduling on Performance Asymmetric Multicore Platforms," Proc. of the 13th IEEE Real-Time and Embedded Technology and Applications Symposium, pp. 101-110, April 2007.

Calandrino, J., J. Anderson and D. Baumberger. "A Hybrid Real-Time Scheduling Approach for Large-Scale Multicore Platforms," Proc. of the 19th Euromicro Conference on Real-Time Systems, pp. 247-256, July 2007.

Clipp, B., G. Welch., J-M Frahm, and M. Pollefeys, "Structure From Motion via a Two-Stage Pipeline of Extended Kalman Filters," British Machine Vision Conference 2007.

Evans, B. A., A. R. Shields, R. L. Caroll, S. Washburn, M. R. Falvo and R. Superfine. "Magnetically Actuated Nanorod Arrays as Biomimetic Cilia," Nano Letters, 7(5), pp. 1428-1434, 2007.

Fisher, J.-K., L. Vicci, K. Bloom, E. Timothy O'Brien, C.W. Davis, R. M. Taylor, II, and

R. Superfine. "Magnetic Manipulation for the Biomedical Sciences," Handbook of Nanoscale Science, Engineering, and Technology, Second Edition, Taylor and Francis, 2007.

Gallup, D., J-M. Frahm, P. Mordohai, Q. Yang, and M. Pollefeys. "Real-Time Plane-sweeping Stereo with Multiple Sweeping Directions," Proc. of the 2007 IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR' 07), 2007.

Galoppo, N., M. Otaduy, S. Tekin, M. Gross, and M. Lin, "Fast Contact Dynamics for Deformable Articulated Characters," Computer Graphics Forum (Proc. of EuroGraphics), September 2007.

Gayle, R., M. Lin and D. Manocha. "Efficient Motion Planning of Highly Articulated Chains using Physics-based Sampling," Proc. of IEEE International Conference on Robotics and Automation, April 2007.

Gayle, R., A. Sud, M. Lin, and D. Manocha, "Reactive Deformation Roadmaps: Motion Planning of Multiple Robots in Dynamic Environments", Proc. of International Conference on Intelligent Robots and Systems, Oct. 2007.

Guan, L., J-S. Franco and M. Pollefeys. "3D Occlusion Inference from Silhouette Cues," Computer Vision and Pattern Recognition, June 2007.

Han, Q., D. Merek, J. Levy, C. Villarruel, E. Chaney and S. M. Pizer. "Proper Training," Information Processing in Medical Imaging, N. Karssemeijer, B. Lelieveldt, eds., Springer, 2007.

Jerald, J., A. Fuller, A. Lastra, M. Whitton, L. Kohli and F. Brooks. "Latency Compensation by Horizontal Scanline Selection for Head-Mounted Displays," Proc. SPIE, Vol. 6490, Stereoscopic Displays and Virtual Reality Systems XIV, Jan – Feb 2007.

Jones, M. G., M. R. Falvo, A. R. Taylor and B. P. Broadwell. Nanoscale Science: Activities for Grades 6-12, National Science Teachers Association Press, 2007.

Kabul, I., R. Gayle and M. Lin. "Cable Route Planning in Complex Environments Using Constrained Sampling," Proc. of ACM Symposium on Solid and Physical Modeling and Applications, June 2007.

Kim, J.-K., R. Hartley, J.-M. Frahm, and M. Pollefeys. "Visual Odometry for Non-Overlapping Views Using Second-Order Cone Programming," Asian Conference on Computer Vision, 2007.

Kim, S.-J., D. Gallup, J-M. Frahm, A. Akbarzadeh, Q. Yang, R. Yang, D. Nister, and M. Pollefeys. "Gain Adaptive Real-Time Stereo Streaming," Proc. International Conference on Computer Vision Systems, 2007.

Kim, S.-J., J.-M. Frahm, and M. Pollefeys. "Joint Feature Tracking and Radiometric Calibration from Auto-Exposure Video," International Conference on Computer Vision, 2007.

Kim, T., and M. Lin. "Stable Advection-Reaction-Diffusion With Arbitrary Anisotropy," Journal of Computer Animation and Virtual World, Special Issue (Best of Computer Animation and Social Agents), June 2007.

Kim, T., J. Sewall, A. Sud, and M. Lin. "Fast Simulation of Laplacian Growth," IEEE Computer Graphics and Applications, 27 (2), pp. 68-76, March 2007.

Kim, Y., S. Redon, M. Lin, D. Manocha, and J. Templeman. "Interactive Continuous Collision Detection using Swept Volume for Avatars," Presence, 16 (2), pp. 206-223, April 2007.

Kwatra, V., D. Adalsteinsson, T. Kim, N. Kwatra, M. Carlson, and M. Lin. "Texturing Fluids," IEEE Transactions. on Visualization and Computer Graphics, 13(5), pp. 939-952, 2007.

Leontyev, H., and J. Anderson. "Tardiness Bounds for FIFO Scheduling on Multiprocessors," Proc. 19th Euromicro Conference on Real-Time Systems, July 2007.

Levy, J.H., R.E. Broadhurst, S. Ray, E.L. Chaney, and S.M. Pizer. "Signaling Local Non credibility in an Automatic Segmentation Pipeline," SPIE Medical Imaging, Feb 2007.

Merrell, P., P. Mordohai, J-M. Frahm, and M. Pollefeys, "Evaluation of Large Scale Scene Reconstruction," Virtual Representations and Modeling of Large-scale environments in conjunction with International Conference on Computer Vision, 2007.

Merrell, P., A. Akbarzadeh, L. Wang, P. Mordohai, J-M. Frahm, R. Yang, D. Nister, and M. Pollefeys. "Real-Time Visibility-Based Fusion of Depth Maps," International Conference on Computer Vision, 2007.

Mordohai, P., J.-M. Frahm, A. Akbarzadeh, B. Clipp, C. Engels, D. Gallup, P. Merrell, C. Salmi, S. Sinha, B. Talton, L. Wang, Q.-X. Yang Yang, H. Stewenius, H. Towles, G. Welch, R. Yang, M. Pollefeys, and D. Nister. "Real-time video-based reconstruction of urban environments," in Proc. of ISPRS Working Group V/4 Workshop 3D-ARCH 2007: 3D Virtual Reconstruction and

Visualization of Complex Architectures, (ETH Zurich, Switzerland), July 2007. Narain, R., V. Kwatra, T. Kim, H. Lee, M. Carlson, and M. Lin. "Feature-Guided Dynamic Texture Synthesis on Continuous Flows," Proc. of EuroGraphics Symposium on Rendering 2007.

Pollefeys, M., D. Nister, J.-M. Frahm, A. Akbarzadeh, P. Mordohai, B. Clipp, C. Engels, D. Gallup, S.-J. Kim, P. Merrell, C. Salmi, S. Sinha, B. Talton, L. Wang, Q. Yang, H. Stew'enius, R. Yang, G. Welch, and H. Towles. "Detailed Real-Time Urban 3D Reconstruction From Video," International Journal of Computer Vision special issue on Modeling Large-Scale 3D Scenes, 2007.

Qi, W., C. Healey, and R. Taylor. "A comparison of user performance in an immersive HMD, a fish tank VR, and a fish tank with haptic displays for visualization of volumetric data," Proc. of Applied Perception in Graphics and Visualization, 2006.

Raghuvanshi, N., C. Lauterbach, A. Chandak, D. Manocha, and M. C. Lin. "Real-Time Sound Synthesis and Propagation for Games," Communications of the ACM, July 2007.

Sewall, J., P. Mecklenburg, S. Mitran, and M. Lin, "Fast Flow Simulation Using Residual Distribution Schemes," Proc. of EuroGraphics Workshop on Natural Phenomena, September 2007.

Sinha, S., J.-M. Frahm., M. Pollefeys, and Y. Genc. "Feature Tracking and Matching in Video Using Programmable Graphics Hardware," Journal of Machine Vision and Applications, 2007.

Stough, J., R. E. Broadhurst, S. M. Pizer, and E. L. Chaney. "Regional Appearance in Deformable Model Segmentation," Information Processing in Medical Imaging, N. Karssemeijer, B. Lelieveldt, eds. Springer, 2007.

Sud, A., R. Gayle, S. Guy, E. Andersen, M. Lin, and D. Manocha. "Real-time Simulation of Heterogeneous Crowds," Proc. of ACM Symposium on Virtual Reality Software and Technology, November 2007.

Ward, K., N. Galoppo, and M. Lin. "Interactive Virtual Hair Salon," Presence, 16(3), pp. 237-251, June 2007.

Yang, H., M. Pollefeys, G. Welch, J.-M. Frahm, and A. Ilie. "Differential camera tracking through linearizing the local appearance manifold," in Proc. of 2007 IEEE Computer Society Conference on Computer Vision and Pattern Recognition, 2007.

Technology Development in CompSci

My name is Lisa Darmo, and I am a licensing associate with the Office of Technology Development at UNC-Chapel Hill. In this position, I assist computer science inventors in the evaluation and protection of their technology, and in the licensing of that technology to existing companies and startups. I have a Ph.D. in Plant Breeding/Genetics from the University of Wisconsin-Madison, and a dozen years of industry licensing, commercialization and marketing experience. Below are a couple of licensing highlights involving members of the Department of Computer Science:

Leandra Vicci, lecturer and director of the Microelectronic Systems Laboratory, developed the concept of a handheld device which summons emergency help. The combination of a GPS receiver with a microprocessor and cell phone chips sends an automatic distress call indicating the precise location of the caller. The licensee, a telecommunications company, plans to develop a portable device capable of placing emergency calls to emergency personnel.

Research Professor **Russell M. Taylor** (Ph.D. 1994) and alumnus **David Borland** (Ph.D. 2007), along with **John Clarke** in Radiology, invented a non-invasive diagnostic technique that enables a radiologist to view 3-D reconstructions of medical data sets. The technology allows for novel views of areas of interest that cannot be obtained from traditional invasive arthroscopic techniques. Non-exclusive rights to this invention have been licensed to a major diagnostic imaging company. This technology was also accepted for demonstration at the Tech 2007 Conference this past October.

Elizabeth Bullitt in Neurosurgery/CS and **Stephen Aylward** (formerly of UNC) invented software that extracts complex tubular objects from 3D data sets and displays them rapidly in 3D. In FY 2007, a research use license was granted to a private medical university, and an option agreement was signed another university to develop derivative commercial products in the field of agriculture. Recently there has been commercial interest in licensing this technology from two companies in the field of medical imaging, with ongoing negotiation and discussion.

Wei Wang receives Hettleman Prize

Associate Professor Wei Wang was recently awarded the Phillip and Ruth Hettleman Prize for Artistic and Scholarly Achievement by Young Faculty.

The Hettleman Prize, which carries a $5,000 stipend, recognizes the achievements of outstanding junior tenure-track faculty or recently tenured faculty.

Wei won the UNC Junior Faculty Development Award in 2003. Her research interests are in data mining, bioinformatics and data bases, and she has filed seven patents.

"Wei's research is also a great success story in our departmental research strategy, which has long focused on collaborative research with scientists to provide tools that enable better science," wrote Jan Prins, chairman, and Fred Brooks, Kenan professor, in their nomination letter.

Family matters

Kathleen and **Tim Culver** (Ph.D. 2000) welcomed their third child, **Cecilia Lenore**, on April 5, 2007. Cecilia joins **Grace** (age 2) and **Matthew** (age 5). (*timculver@gmail.com*)

Adjunct associate professor **Martin Styner** (Ph.D. 2001) and his wife, **Maya**, welcomed a son, **Max Jacob**, on May 8, 2007. (*styner@cs.unc.edu*)

Joshua Steinhurst (Ph.D. 2007) married **Barbra Gregory** on May 27, 2007. (*jsteinhu@cs.unc.edu*)

Graduate student **Marc Macenko** and his wife, **Kimberly**, welcomed a son, **Matthew Daniel**, on June 15, 2007. (*macenko@cs.unc.edu*)

Stephanie and **Kelly Corbet** (B.S. M.Sci. 1987) welcomed a son, **Tristan Flynn**, on August 5, 2007. (*kscorbet-subs@nc.rr.com*)

Bill Brown (M.S. 1990) married **Melissa Coffey** on Sept. 9, 2007 in Seattle, Wash. (*william.j.brown2@boeing.com*)

Shannon and **Scott Leslie** (B.S. M.Sci. 1991) welcomed a daughter, **Keira Marie**, on Oct 4, 2007. (*Scott.Leslie@sas.com*)

M.S. AND PH.D. ALUMNI

Ronald Azuma (Ph.D. 1995) was named an ACM Senior Member. He was one of 142 recipients of the member grade in 2006. (*azuma@hrl.com*)

Randy Brown (M.S. 1990), Chief Technical Officer at Virtual Heroes (*www.virtualheroes.com*), gave a keynote presentation at the International Workshop on OpenMP (*www.iwomp.org*) on June 5 at Tsinghua University in Beijing, China. The keynote was titled "Dual Core to Quad Core to Hard Core: Gaming and Game Development in an MP World," and discussed issues and approaches of multi-processing in game development along with the latest game software and hardware taking advantage of MP. He also took his fiancée along and toured the Great Wall, Forbidden City, Summer Palace, and many other amazing sites, and highly recommends the roast duck. (*randy.brown@virtualheroes.com*)

William (Bill) Brown (M.S. 1990) is marking his 16th year with Boeing and 13th year in Boeing's Mathematics & Computing Technology organization. He recently stepped down from the post of Treasurer of the Puget Sound Carolina alumni club after 15 years. He was also recently married (see Family Matters). (william.j.brown2@boeing.com)

Tim Culver (Ph.D. 2000) has been working at Autodesk on Revit in Waltham, Mass., for the last 2.5 years. He and his wife, **Kathleen**, recently welcomed their third child (see Family Matters). (*timculver@gmail.com*)

In June 2007, **Kris Georges** (M.S. 1995) received the 2007 Founders Award for Outstanding Achievement in the Field of Excellence. Congratulations Kris! (*georges@dslextreme.com*)

Daniel Hoffman (Ph.D. 1984) was recently appointed Associate Dean of Undergraduate Programs in the Faculty of Engineering at the University of Victoria, B.C., Canada. (*dhoffman@cs.uvic.ca*)

Subodh Kumar (Ph.D. 1996) recently joined the faculty at IIT Delhi. (*subodh@cse.iitd.ac.in*)

David Luebke (Ph.D. 1998) has recently moved back to Charlottesville, Va., after a year in Silicon Valley. He will continue working remotely for NVIDIA Research. (*dave@luebke.us*)

Vincent Scheib (M.S. 2002) wrote in some fun news from Emergent: For those spectators in the playful competition of UNC vs. NCSU alumni at Emergent Game Technologies (formerly NDL), the balance has been upset. **Tom Hudson** (Ph.D. 2004) has returned to Chapel Hill and bumped the count to nine alumni from Sitterson Hall, vs. eight from State. (*vincent.scheib@emergent.net*)

Kiranjit Singh Sidhu (M.S. 2007) graduated in May and recently began a new job at Facebook in Palo Alto, Calif. (*kiranjit.sidhu@gmail.com*)

Joshua Steinhurst (Ph.D. 2007) began a tenure-track assistant professor position in the computer science department at Bucknell University in August 2007. He was also married in May 2007 (see Family Matters). (*jsteinhu@cs.unc.edu*)

Greg Turk (Ph.D. 1992), who works in computer graphics, has been appointed Papers Chair for SIGGRAPH 2008, which is the big annual conference in his field. (*turk@cc.gatech.edu*)

Sung-Eui Yoon (Ph.D. 2005) has returned to his home country, South Korea, to join the faculty of KAIST (Korea Advanced Institute of Science and Technology) as an assistant professor. He reports that the settling in process is going very well thanks to a few professors in his area, computer graphics, as well as fellow alumnus **Taisook Han** (Ph.D. 1990), who is a professor at KAIST. If you visit DeaJeon, South Korea, Sung-Eui says to make sure to look him up! (*sungeui@gmail.com*)

UNDERGRADUATE ALUMNI

Nick Carr (B.S. 2002) graduated from law school in May 2007. He passed the NC Bar Exam and is now working as a law clerk to the Honorable Sarah Parker, Chief Justice of the North Carolina Supreme Court. (*nickcarr@alumni.unc.edu*)

Aaron R. Fulkerson (B.S. 2004) is the founder of Mindtouch, Inc. (wiki.mindtouch.com) The company recently announced the availability of Deki Wiki "Hayes," a free open source wiki and application platform for communities and enterprises. (*AaronF@mindtouch.com*)

Scott Leslie (B.S. M.Sci. 1991) and his wife, **Shannon**, live in the Chapel Hill area and are both Principal Systems Developers at SAS Institute Inc. They recently welcomed a new daughter (see Family Matters). (*Scott.Leslie@sas.com*)

Last year, **Patrick Livingood** (B.S. M.Sci. 1996) started his job as an assistant professor of archaeology in the Department of Anthropology at the University of Oklahoma. His research often involves the application of computer and quantitative techniques to the study of prehistoric archaeological materials from the southeastern US. He currently lives in Norman, Okla., with his wife, **Susannah** (1995 UNC alumna), and two children. (*patrickl@ou.edu*)

FORMER FACULTY

Akira Nakamura (faculty member, 1966-1968) recently moved to a new house within Hiroshima City. He and his wife report that they are quite well and enjoying their old age. (*an1206@ad.cyberhome.ne.jp*)

Graduate Student Receives Marr Prize

Computer science Ph.D. student Bradley Davis (M.S. 2005) was recently awarded the 2007 David Marr Prize for best paper at the Eleventh IEEE International Conference on Computer Vision (ICCV '07), held in Rio de Janeiro, Brazil. His paper, Population Shape Regression From Random Design Data, was selected for the award from nearly 1300 submissions, only 47 of which were chosen to be presented orally, and was the only paper this year to be honored with the Marr Prize. The paper was co-authored by P. Thomas Fletcher (Ph.D. 2004), research assistant professor in the School of Computing at the University of Utah; Elizabeth Bullitt, Van Weatherspoon Jr. Distinguished Professor of Neurosurgery and head of the Computer-Assisted Surgery and Imaging Laboratory at UNC; and Brad's advisor, Sarang Joshi, associate professor of bioengineering at the University of Utah and adjunct associate professor of computer science at UNC.

The research on which the paper is based was developed in a very multidisciplinary environment provided by the Medical Image Display and Analysis Group (MIDAG), which presently includes approximately 110 faculty, graduate students and staff. The ideas behind Brad's paper originated while he worked as a research assistant in the department of radiation oncology and matured more fully for the study of the aging of the brain within Elizabeth Bullitt's Computer-Assisted Surgery and Imaging Laboratory (CASILab).

The goal of the research was to better understand both healthy anatomy and disease progression, by measuring and analyzing anatomical change over time from three-dimensional medical images. Classical regression methods are commonly applied to study average anatomical change for populations of individuals, such as brain tissue volume as a function of age. However, when highly complex anatomical organ and tissue shapes and shape change are studied, these regression methods are not always suitable. To overcome this problem, Brad and his team developed a generalized method of regression that is applicable to the study of anatomical shape change from patient populations. Researchers from the Department of Psychiatry at UNC are already putting the method to use.

Brad received a bachelor's degree in computer science in 2001 from Carleton College. His research interests include medical image analysis, computational anatomy and radiation therapy. In 2006, Brad joined Kitware, a business with expertise in medical image analysis, 3D graphics, visualization and quality software process, as a research and development engineer. He is one of a number of alumni and faculty from the department of computer science who play a major role in the company.

The Marr Prize is awarded to the best paper at the biennial International Conference on Computer Vision. The prize commemorates David Courtnay Marr, a Cambridge (UK) theoretical neuroscientist with a background in mathematics who made profound contributions to the theory of both human and machine vision at the MIT AI Lab in the 1970s. Brad's paper is only the 17th to be honored by the award, which has been given since 1987.
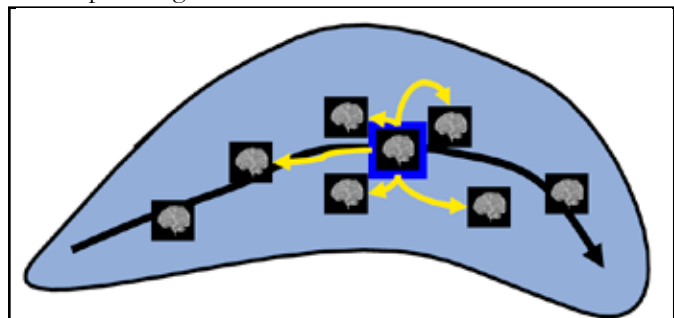
Researchers compute the expected shape of a healthy adult brain---as a function of age---from a collection of 3D medical images. The result is computed using regression and a generalized notion of mean or centrality, which is depicted in the above figure.

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Throughout News & Notes, we list degree information for all our B.S., M.S., and Ph.D. Computer Science and Math Sciences alumni.

In Memoriam

Doris Schumann Knecht (M.S. 1984) of Chapel Hill died May 26, 2007, at her home. She was 64. She was born in Cincinnati, Ohio. She received a bachelor's degree from the University of Cincinnati and a master's degree in chemistry from Xavier University. After she and her family moved to Chapel Hill in 1982, Doris received a master's in computer science from UNC. She worked as a software engineer for several local companies, including Data General, Intersolv, Intelligent Information Systems and Network Appliance, before retiring in 2005. She was a member of the University United Methodist Church.

Sathyabhama Devi Roy (M.S. 1974) died March 22, 2007, at the age of 75. She was born in Mysore, India, and was residing in Gaithersburg, Md., at the time of her passing. She retired from IBM, where she worked as a technical manager and was involved with many projects, including a global communications project for Mobil Oil and an air traffic control system for the FAA. Sathyabhama was also a volunteer with area Indian-American organizations and was on the board of Karuna Charities.

Harriet P. Snipes (M.S. 1975), age 55, of Wilmington, Del., passed away suddenly on Wednesday, January 31, 2007. She was known to her friends and family as Pete. She loved life and lived it to the fullest. She and her husband rode their tandem bicycle across the USA. She completed 38 marathons in 31 different states. Pete loved to travel and just completed a bike tour on the Danube River in Austria. She recently and enthusiastically began to play the fiddle and mandolin and found it a great joy. She was a gentle, generous, loving person. She was a wonderful wife, daughter and friend to us all. Her smile and laugh brightened everyone near her. Pete was a graduate of UNC-Greensboro NC and also held 2 master's degrees from UNC-Chapel Hill. She was employed by Agilent for 28 years as a software engineer.