CURRICULUM VITA

April 2008

NAME: Eileen T. Kraemer

ADDRESS:

Department of Computer Science
The University of Georgia
Athens, GA 30602-7404
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EDUCATION:

Ph.D.	Computer Science	Georgia Institute of Technology	September 1995
	Thesis advisor: Dr. John Stasko		
	Dissertation: *The manipulation of time and event order in the visualization of parallel and distributed systems*.		
M.S.	Computer Science	Polytechnic University	December 1986
B.A.	Biology	Hofstra University	May 1980

PROFESSIONAL EXPERIENCE:

1998 – present	Professor, Computer Science, University of Georgia, Athens, Georgia. (promoted to Associate Professor in 2001, to Professor in 2007)
1995 – 1998	Assistant Professor, Computer Science Director, Computer Visualization Laboratory, Washington University in St. Louis, St. Louis, Missouri.
1989 – 1995	Graduate Research Assistant, Georgia Tech, Atlanta, Georgia.
1987 – 1989	Instructor, Oglethorpe University, Atlanta, Georgia.
1986 – 1987	Training Manager, Online Financial Communications, Atlanta, Georgia.
1985 – 1986	Instructor, Polytechnic University, Farmingdale, New York.
1980 – 1985	Teacher, Long Island, New York.

CURRENT GRANTS AND CONTRACTS:

"Integrated Databases for Apicomplexan Pathogens," PI: Jessica Kissinger ; CO-PIs: John A. Miller and Eileen T. Kraemer, National Institutes of Health (NIH), July 2004 – June 2009, $3,100,000.

PENDING GRANTS

"HCC-Small: Collaborative Research: A User-Centered Approach to Supporting the Design, Verification, and Maintenance of Concurrent Software," National Science Foundation, submitted 12/10/2007. **UGA portion**: PI: **Eileen Kraemer**, $175,406. **MSU portion**: Co-PIs: Kurt Stirewalt, Laura K. Dillon, David Z. Hambrick, $274,096.

PRIOR GRANTS:

"Collaborative Research: Program Visualization: Using Perceptual and Cognitive Concepts to Quantify Quality, Support Instruction, and Improve Interactions," PI: Eileen Kraemer, National Science Foundation, NSF IIS-0308063, June 15, 2003 – May 31, 2006, $303,606.

"Enhanced Learning Through Virtual Reality", PI: Eileen Kraemer; Co-PIs: John Miller and Leon Deligiannidas, University of Georgia Learning Technologies Grants Program, Committee for Applied Instructional Technologies, 2003, $73,074.

"Proteomic patterns in sera as a tool in ovarian cancer diagnostics", PIs: W. Dynan (MCG) and J. McDonald (UGA); Co-PI: Eileen Kraemer, Medical College of Georgia – University of Georgia Intramural Cancer Grants Program, 2003, $80,000.

"Instrumentation Grant for Research in Parallel and Distributed Computing", PI: David K. Lowenthal; Co-PIs: Suchendra Bhandarkar, Eileen T. Kraemer, National Science Foundation, NSF CNS-9986032, March 15, 2000 - February 28, 2004, $114,000.

"REU Supplement to: An Infrastructure in Support of Configurable, Consistent, Interactive Computational Steering", National Science Foundation, NSF CCF-9996082, 6/1/99 - 5/31/00, $5,000.

"CAREER: An Infrastructure in Support of Configurable, Consistent, Interactive Computational Steering", PI: Eileen Kraemer, National Science Foundation, NSF CCF-9996082, May 1998 - April 2003, $201,617.

"Network Monitoring, Visualization and Control with Emphasis on Multi-Layer Protocols and Human-in-the-Loop", PI: Jonathan Turner, Co-PIs: Ron Cytron, Doug Schmidt, Eileen Kraemer,
National Science Foundation, NSF CNS-9714698, September 1997 - August 2001, $1,200,059.

Subcontracts to UGA:

- "Network Monitoring, Visualization, and Control of High Speed Networks with Emphasis on Multi-Layer Protocols and Human-in-the-Loop," PI: Eileen Kraemer, Washington University in St. Louis (subcontract), 01/01/00 - 12/31/00, $24,677.

- "Network Monitoring, Visualization, and Control of High Speed Networks with Emphasis on Multi-Layer Protocols and Human-in-the-Loop," PI: Eileen Kraemer, Washington University in St. Louis (subcontract), 1/1/99 - 12/31/99, $24,677.

"Query-Based Visualization of Executing Distributed Computations," PI: Gruia-Catalin Roman, Co-PI: Eileen Kraemer, National Science Foundation, NSF CCR-9619831, July 1997 - June 2001, $270,053.

"CISE Research Instrumentation: Effective Visual Presentation of Computer-Generated Information", PI: Gruia-Catalin Roman, Co-PIs: Subhash Suri, Eileen Kraemer, Philip Hubbard, National Science Foundation, NSF EIA-9616969, February 1997 - July 1998, $80,000.

BOOK CHAPTERS

J. Arnold, H.-B. Schuttler, D.A. Logan, D. Battogtokh, J. Griffith, B. Arpinar, S.M. Bhandarkar, S. Datta, K.J. Kochut, E. Kraemer, J.A. Miller, A. Sheth, G. Strobel, T. Taha, B. Aleman-Meza, J. Doss, L. Harris and A. Hyong, **Metabolomics**, in *Handbook of Industrial Mycology*, Marcel-Dekker, New York, NY, 2004, Chapter 22, pp. 597 – 633.

Eileen Kraemer, **Visualizing Concurrent Programs,** in Marc Brown, John Domingue, Blaine Price, and John Stasko, editors, *Software Visualization: Programming as a Multimedia Experience*, MIT Press, Cambridge, MA, January 1998, Chapter 17.

JOURNAL PUBLICATIONS:

M. Eduard Tudoreanu and Eileen Kraemer, "Balanced cognitive load significantly improves the effectiveness of algorithm animation as a problem-solving tool", *JVLC (Journal of Visual Languages and Computing),* in press. doi:10.1016/j.jvlc.2008.01.001

Eileen T. Kraemer, Bina Reed, Philippa Rhodes, and Ashley Hamilton-Taylor, "SSEA: A System for Studying the Effectiveness of Animations", in *Electronic Notes in Theoretical Computer Science*, 178(4):171-179, June 2007.

C. Aurrecoechea, M. Heiges, H. Wang, Z. Wang, S. Fischer, P. Rhodes, J. Miller, E. Kraemer, C.J. Stoeckert, D.S. Roos, and J.C. Kissinger, "ApiDB: Integrated Resources for the Apicomplexan Bioinformatics Resource Center", in *Nucleic Acids Research*, Vol 35, D427-D430, 2007.

H. Wang, Y. Su, A. Mackey, E. T. Kraemer and J.C. Kissinger, "SynView: A GBrowse-compatible Approach to Visualizing Comparative Genome Data", *Bioinformatics*, 2006, 22(18):2308-2309.

M. Heiges, H. Wang, E. Robinson, C. Aurrecoechea, X. Gao, N. Kaluskar, P. Rhodes, S. Wang, C. He, Y. Su, J. Miller, E. Kraemer and J.C. Kissinger, "CryptoDB: a Cryptosporidium Bioinformatics Resource Update", *Nucleic Acids Research*, 2006, Vol. 34, D419–D422.

Susanne Warrenfeltz, Stephen Pavlik, Susmita Datta, Eileen T. Kraemer, Benedict Benigno, John F McDonald, "Gene expression profiling of epithelial ovarian tumors correlated with malignant potential", *Molecular Cancer* 2004 3:27 (October 7, 2004).

Kamyar Farahi, William B. Whitman, Eileen T. Kraemer, "RED-T: Utilizing the Ratios of Evolutionary Distances for Determination of Alternative Phylogenetic Events", *Bioinformatics*, 19(16):2152-2154 (Nov 2003).

Jian Wang and Eileen Kraemer, "GFPE: Gene-Finding Program Evaluation", *Bioinformatics*, 19(13):1712-1713 (Sept 2003).

Zheng Xu, Britton Lance, Claudia Vargas, I. Budak Arpinar, Eileen Kraemer, Krys J. Kochut, John A. Miller, Jeff R. Wagner, Michael J. Weise, John K. Wunderlich, James Stringer, George Smulian, Melanie T. Chusion and Jonathan Arnold, "Mapping by Sequencing the Pneumocystis Genome, Using the Ordering DNA Sequences V3 Tool", Genetics (GENE), 163(4): 1299-1313 (April 2003).

Krys J. Kochut, Jonathan Arnold, Amit P. Sheth, John A. Miller, Eileen Kraemer, I. Budak Arpinar and Jorge Cardoso, "IntelliGEN: A Distributed Workflow System for Discovering Protein-Protein Interactions", *Distributed and Parallel Databases, An International Journal (DAPD)*, Special Issue on Bioinformatics, 13 (1): 43-72; Jan 2003.

Ashley George Hamilton-Taylor and Eileen Kraemer, "Designing an Algorithm Animation System to Support Instructional Tasks", *International Multimedia Electronic Journal of Computer-Enhanced Learning (IMEJ)*, October 2002. http://imej.wfu.edu/articles/2002/2/04/index.asp

Eileen Kraemer, Jian Wang, Jinhua Guo, Samuel Hopkins, Jonathan Arnold, "An Analysis of Gene-Finding Programs for *Neurospora crassa*", *Bioinformatics*, 17(10):1-12, November 2001.

Delbert Hart and Eileen T. Kraemer, "Consistency Considerations in the Interactive Steering of Computations", *International Journal of Parallel and Distributed Systems and Networks*, 2(3):171-179, 1999.

Eileen T. Kraemer and Thomas E. Ferrin, "Molecules to Maps: Tools for Visualization and Interaction in Support of Computational Biology", *Bioinformatics*, 14(9):764-771, October 1998.

Eileen Kraemer and John T. Stasko, "Creating an Accurate Portrayal of Concurrent Executions", *IEEE Concurrency,* 6 (1), pp. 36-46, January/March 1998.

Guru Parulkar, Doug Schmidt, Eileen Kraemer, Jon Turner, and Anshul Kantawala, "An Architecture for Monitoring, Visualization, and Control of Gigabit Networks", *IEEE Network*, pp. 34-43, September/October 1997.

Eileen Kraemer and John T. Stasko, "The Visualization of Parallel Systems: An Overview", *Journal of Parallel and Distributed Computing*, 18 (2), pp. 105-117, June 1993.

John T. Stasko and Eileen Kraemer, "A Methodology for Building Application-Specific Visualizations of Parallel Programs", *Journal of Parallel and Distributed Computing*, 18 (2), pp. 258-264, June 1993.

REFEREED CONFERENCE PUBLICATIONS:

Scott D. Fleming, Eileen Kraemer, R.E.K. Stirewalt, Laura K. Dillon and Shaohua Xie, "Refining Existing Theories of Program Comprehension During Maintenance for Concurrent Software", *16th IEEE International Conference on Program Comprehension (ICPC 2008)*, Amsterdam, June 2008.

Laura K. Dillon, R.E.K. Stirewalt, Eileen Kraemer, Shaohua Xie and Scott D. Fleming, "Using Formal Models to Objectively Judge Quality of Multi-Threaded Programs in Empirical Studies", *ICSE Workshop on Models in Software Engineering (MiSE'08),* Leipzig, May 2008.

Scott Fleming, Eileen Kraemer, R.E.K. Stirewalt, Shaohua Xie, and Laura K. Dillon, "A Study of Student Strategies for the Corrective Maintenance of Concurrent Software", *Proceedings of the 2008 International Conference on Software Engineering (ICSE'08)*, Leipzig, May 2008.

M. Eduard Tudoreanu and Eileen Kraemer, "A Study of the Performance of Steering Tasks under Spatial Transformation of Input," *47th ACM Southeast Conference*, Auburn, AL, March 2008. (Best Paper Award)

Scott D. Fleming, R.E.K. Stirewalt and Eileen T. Kraemer, "Toward a Task Model of Concurrent Software Maintenance", in *Proceedings of the ASE Workshop on Empirical Assessment of Software Engineering Languages and Technologies (WEASELTech'07)*, Atlanta, Georgia, November 2007.

Massimiliano diPenta, R.E.K. Stirewalt, and Eileen Kraemer, "Designing your Next Empirical Study on Program Comprehension", pp. 281-285, 15th IEEE International Conference on Program Comprehension (ICPC 2007), 2007.

Shaohua Xie, Eileen Kraemer, and R.E.K. Stirewalt, "Empirical Evaluation of a UML Sequence Diagram with Adornments to Support Understanding of Thread Interactions", pp 112-134, 15th IEEE Conference on Program Comprehension (ICPC 2007), 2007.

S. Xie, E. Kraemer and R.E.K. Stirewalt, "Design and Evaluation of a Diagrammatic Notation to Aid in the Understanding of Concurrency Concepts", *Proceedings of the 2007 International Conference on Software Engineering (ICSE 2007)*, pp. 727-731, 29th International Conference on Software Engineering (ICSE'07), 2007.

Maria Hybinette, Eileen Kraemer, Yin Xiong, Glenn Matthews and Jaim Ahmed, "SASSY: A design for a scalable agent-based simulation system using a distributed discrete event infrastructure", in *2006 Winter Simulation Conference*, pp. 926 – 933, December 3-6, 2006, Monterey, CA.

Philippa Rhodes, Eileen Kraemer, and Bina Reed, "The Importance of Interactive Questioning Techniques in the Comprehension of Software Visualizations", in *Proceedings of ACM Symposium on Software Visualization (SoftVis'06)*, pp. 183 – 184, September 4-5, 2006, Brighton, UK.

Bina Reed, Philippa Rhodes, Eileen Kraemer, Ashley Hamilton-Taylor, Elizabeth Thorpe Davis and Kenneth Hailston, "The Effect of Comparison Cueing and Exchange Motion on

Comprehension of Program Visualizations", in *Proceedings of ACM Symposium on Software Visualization (SoftVis'06)*, pp. 181 – 182, September 4-5, 2006, Brighton, UK.

Philippa Rhodes, Eileen Kraemer, Ashley Hamilton-Taylor, Sujith Thomas, Matthew Ross, Elizabeth Davis, Kenneth Hailston, and Keith Main, "VizEval – An Experimental System for the Study of Program Visualization Quality" in *Proceedings of IEEE Symposium on Visual Languages and Human-Centric Computing 2006 (VL/HCC06)*, pp. 55 – 58, September 4-8, 2006, Brighton, UK.

Eileen T. Kraemer, Bina Reed, Philippa Rhodes, and Ashley Hamilton-Taylor, "SSEA: A System for Studying the Effectiveness of Animations", in *Proceedings of Fourth Program Visualization Workshop*, June 29-30, 2006, pp. 81 – 85, Florence, Italy.

E.T. Davis, K. Hailston, E. Kraemer, A. Hamilton-Taylor, P. Rhodes, C. Papadimitriou, and B. Garcia, "Examining Perceptual Processing of Program Visualization Displays to Enhance Effectiveness", *50th Annual Meeting of Human Factors and Ergonomics Society*, pp. 2066 – 2070, October 16-20, 2006, San Francisco, CA.

P. Rhodes, E. Kraemer, B. Reed, "VisIOn: An Interactive Visualization Ontology", *ACMSE 2006: 44th ACM Southeast Conference,* March 10-12, 2006, pp. 405-410, Melbourne, FL.

V. Sachdev, M. Hybinette, E. Kraemer, "Controlling Over-Optimism in Time-Warp via CPU-based Flow Control", *Proceedings of the 2004 Winter Simulation Conference*, Vol. 1, pp 304-402, 2004.

Shiming Dong and Eileen Kraemer, "Calculation, Visualization, and Manipulation of MASTs (Maximum Agreement Subtrees)", *Proceedings of the Computational Systems Bioinformatics 2004* (CSB 2004), pp 405-414.

Mihail Tudoreanu, Rong Wu, Ashley Hamilton-Taylor, Eileen Kraemer, "Empirical Evidence that Algorithm Animation Promotes Understanding of Distributed Computations", *Proceedings of the IEEE 2002 Symposia on Human Centric Computing Languages and Environments*, Arlington, VA, pp 236-243, Sep. 3-6, 2002.

Ashley George Hamilton-Taylor and Eileen Kraemer, "SKA: Supporting Algorithm and Data Structure Discussion," ACM SIGCSE Bulletin, *Proceedings of the 33rd SIGCSE Technical Symposium on Computer Science Education*, February 2002, Volume 34, Issue 1, pp 58-63.

David Miller, Jinhua Guo, Eileen Kraemer, Yin Xiong "On-the-Fly Calculation and Verification of Consistent Steering Transactions", *Proceedings of Supercomputing 2001*, Denver, CO, Nov. 10-16, 2001.

Eileen Kraemer, Mihail Tudoreanu, Ashley Taylor, "Why Johnny Won't Visualize", in *Proceedings, Workshop on Software Visualization*, Toronto, Canada, May 2001.

Delbert Hart, Mihail Tudoreanu, Eileen Kraemer, "Mobile Agents for Monitoring Distributed Systems", in *Proceedings of the Fifth International Conference on Autonomous Agents*, Montreal, Canada, May 2001, pp 232-233.

Delbert, Hart, Mihail Tudoreanu, Eileen Kraemer, "Token Finding Using Mobile Agents", in *Proceedings of the International Conference of Computational Science*, San Francisco, CA, May 2001, pp 791-800.

Mihail Tudoreanu, Eileen Kraemer, "Automatic Presentation of Running Programs," in *Proceedings, Electronic Imaging, Visual Data Exploration and Analysis*, San Jose, CA, January 21-26, 2001.

Kohn, B., Kraemer, E., Hart, D. and Miller, D., "An Agent-Based Approach to Dynamic Monitoring and Steering of Distributed Computations," *in Proceedings, IASTED Parallel and Distributed Computing and Systems*, Las Vegas, NV, pp. 646-651, November 7-9, 2000.

Vuppula, H., Kraemer, E. and Hart, D., "Algorithms for Collection of Global Snapshots in a Distributed System: An Empirical Evaluation", in *Proceedings*, *ISCA 13th International Conference, Parallel and Distributed Computing Systems*, Las Vegas, NV, pp. 197—204, Aug 8 – 10, 2000.

Navin Gupta, Eileen Kraemer, Delbert Hart, David Miller, Maria Chinwala, "Exploratory Visualization of Distributed Computations: A Case Study", in *Proceedings*, *5th International Symposium on Software Engineering for Parallel and Distributed Systems* (PDSE 2000), Limerick, Ireland, pp. 189-195, June 10-11, 2000.

Kraemer, E., "A Java-based Course in Human-Computer Interaction", in *Proceedings*, *Parallel and Distributed Processing Techniques and Applications* (PDPTA 2000), Las Vegas, NV, pp. 112-116, June 26-29, 2000.

Hart, D., Kraemer, E., "Agent Roles in Snapshot Assembly", in *Proceedings*, *Parallel and Distributed Processing Techniques and Applications* (PDPTA 1999), Las Vegas, NV, pp. 691-697, June 1999.

Eileen Kraemer, Delbert Hart, and Gruia-Catalin Roman, "Balancing Consistency and Lag in Transaction-Based Computational Steering", in *Proceedings of the 31st Hawaiian International Conference on System Science*, Kohala Coast, HI, pp. 137-147, January 5-9, 1998.

Greg Eisenhauer, Weiming Gu, Eileen Kraemer, Karsten Schwan, and John Stasko, "Online Displays of Parallel Programs: Problems and Solutions", in *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'97)*, Las Vegas, NV, pp. 11-20, July 1997.

Eileen Kraemer, "Causality Filters: A Tool for the Online Visualization and Steering of Parallel and Distributed Programs", in *Proceedings of the 11th International Parallel Processing Symposium (IPPS'97)*, Geneva, Switzerland, pp. 113-120, April 1-5, 1997.

Delbert Hart, Eileen Kraemer, and Gruia-Catalin Roman, "Interactive Visual Exploration of Distributed Computations", in *Proceedings of the 11th International Parallel Processing Symposium (IPPS'97)*, Geneva, Switzerland, pp. 121-127, April 1-5, 1997.

Eileen Kraemer and John Wallis, "Visualization and Interactive Steering of Simulated Annealing", in *Proceedings of the Symposium on Parallel and Distributing Processing (SPDP) Workshop on Program Visualization and Instrumentation*, New Orleans, LA, pp. 12-20, Oct. 1996.

Weiming Gu, Greg Eisenhauer, Eileen Kraemer, John Stasko, and Jeffrey Vetter, "Falcon: On-line Monitoring and Steering of Large-Scale Parallel Programs," in *Proceedings of the Fifth Symposium on the Frontiers of Massively Parallel Computation*, McClean, VA, pp. 422-429, February 1995.

Eileen Kraemer and John T. Stasko, "Issues in Visualization for the Comprehension of Parallel Programs", in *Proceedings of the Workshop on Program Comprehension*, Washington, D.C., pp. 116-125, November 1994.

Eileen Kraemer and John T. Stasko, "Toward Flexible Control of the Temporal Mapping from Concurrent Program Events to Animations", in *Proceedings of the Eighth International Parallel Processing Symposium (IPPS)*, Cancun, Mexico, pp. 902-908, May 1994.

Bill Appelbe, Eileen Kraemer, Bala Lakshmanan, John Stasko, and Joe Wehrli, "Graphical Support for Debugging Parallel Programs", (extended abstract), in *Proceedings of the 1993 ACM/ONR Workshop on Parallel and Distributed Debugging*, San Diego, CA, pp. 172-174, May 1993.

SOFTWARE DEVELOPED:

Related to bioinformatics:

- CryptoDB: worked with graduate students to design and implement the appearance and flow of interactions in the web site front-end of the *Cryptosporidium* database (www.cryptodb.org)
- Cluster Corroborator: computes metrics that can be used in evaluating the performance of clustering algorithms. Our focus was on clustering as applied to microarray data. Metrics include "average proportion of cluster non-overlap", "average distance between cluster mean expression profiles," "average distance between cluster expression profiles," and "minimum summed distance between expression profiles of model and computed classes." Available at www.cs.uga.edu/~eileen/cluster.
- SynViewer: worked with graduate student Yanqi Su and ApiDB project staff Haiming Wang to develop SynViewer, an extension to the GBrowse framework that supports comparative genome visualization. Will be available at www.apidb.org/synviewer upon publication of the related paper.
- User interface designer for the GUS (Genomics Unified Schema) WDK (Web Development Kit). The WDK software is designed to permit easy creation of "query-based" websites. We have developed an XML-based specification and code generation module to simplify the process of creating and modifying the pages that comprise that site. Used in developing the site seen at www.cryptodb.org. Developed with graduate student N. Kaluskar.
- Gene-finding Program Evaluation (GFPE): this set of Java packages supports empirical evaluation of the performance of gene-finding programs. Developed with graduate student J. Wang.

Related to empirical studies of program visualization:

- VizEval Suite: tools to support empirical studies of perception and cognition of program visualization. Consists of TestCreator (for creating experiments) and TestTaker (for running experiments) and other utilities. In use at the Davis Lab at Georgia Tech (our collaborator). Developed with graduate students A. Taylor, P. Rhodes, S. Thomas, and M.Ross. Available at http://www.cs.uga.edu/~eileen/VizEval.
- SSEA (System for the Study of Effectiveness in Animations) supports experiments that evaluate program comprehension. In current use in the Kraemer lab. Developed with graduate student B. Reed.

Other:

- Pathfinder: worked with graduate students D. Hart, H. Vuppula, N. Gupta, B. Kohn, J. Guo, and D. Miller to develop an environment for the interactive monitoring and steering of distributed computations. Employed C++ and Java. Supported both PVM and MPI-based programs.
- VisIOn – A Visualization Ontology Viewer. Permits a user to view an ontology of program visualization, to search for program visualization systems based on attributes related to effectiveness and other factors, and to enter new systems into the underlying database. Developed with graduate student P. Rhodes. Prototype available at: http://www.cs.uga.edu/~rhodes (follow VisIOn link).

OTHER PUBLICATIONS:

Eileen Kraemer, Jian Wang, Jinhua Guo, Samuel Hopkins and Jonathan Arnold, "An Analysis of Gene-Finding Approaches for *Neurospora crassa*", (Poster presentation) *In Silico Biology,* Atlanta, GA, Nov. 15-18, 2001.

Renyi Liu and Eileen Kraemer, "Strategies for Improving Multiple Alignment of Retrotransposon Sequences", (Poster presentation) *In silico Biology,* Atlanta, GA, Nov. 15-18, 2001.

Tao Wu and Eileen Kraemer, "Expression Profiler: Software to Analyze and Visualize Gene Expression Profiles," (Poster presentation) *In Silico Biology*, Atlanta, GA, Nov. 15-18, 2001.

Yong Zhang, Hui Tian, Jonathan Arnold, Eileen Kraemer, "A Visualization System for Protein Interaction Mapping", (Poster presentation) *In Silico Biology,* Atlanta, GA, Nov. 15-18, 2001.

H.Z. Zhong, E.T. Kraemer, E.W. Taylor, "ProMatch: A program for distantly related protein homology modeling," ABSTR PAP AM CHEM S 221:217-COMP Part 1 April 1, 2001.

Eileen T. Kraemer, "Interaction in Smart Environments" (Book Review) IEEE Multimedia, July-Sept 2000, pp 91-92.

Thomas E. Ferrin and Eileen T. Kraemer, "Molecules to Maps: Tools for Visualization and Interaction in Support of Computational Biology", (Session Introduction), *PSB'2000*, Honolulu, HI, 5:200-202, January 3-8, 2000.

Wei Yu, Eileen Kraemer, and Will Taylor, "RiboFrShFinder: Prediction of Programmed -1 Ribosomal Frame Shift Sites", (Poster Presentation), *Experimental Biology 2000* FASEB J 14(4): A328-A328, March 15, 2000.

Thomas E. Ferrin and Eileen T. Kraemer, "Molecules to Maps: Tools for Visualization and Interaction in Support of Computational Biology", (Session Introduction), *PSB'99*, Kohala Coast, HI, 4:338-340, January 3-8, 1999.

Delbert Hart and Eileen Kraemer, "An Agent-Based Perspective on Distributed Monitoring and Steering", (Poster Presentation), *Symposium on Parallel and Distributed Tools (SPDT'98)*, Welches, OR, August 3-4, 1998.

Thomas E. Ferrin and Eileen T. Kraemer, "Molecules to Maps: Tools for Visualization and Interaction in Support of Computational Biology", (Session Introduction), *PSB'98*, Maui, HI, 3:103-105, January 4-9, 1998.

Eileen Kraemer and Jeffrey S. Vetter, "Computational Steering", (Session Introduction), Proceedings of the *31st Hawaiian International Conference on System Science*, Kohala Coast, HI, pp. 126, January 5-9, 1998.

Delbert Hart, Eileen Kraemer, Gruia-Catalin Roman, "Using Snapshot Streams to Support Visual Exploration", Technical Report 97-46, Washington University, Department of Computer Science, St. Louis, Missouri, 1997.

Delbert Hart, Eileen Kraemer, and Gruia-Catalin Roman, "Query-based Visualization of Distributed Computations", Technical Report WUCS-96-23, Washington University, Department of Computer Science, St. Louis, MO, December 1996.

Eileen Kraemer and Mark Borodovsky, "An Entropy-Minimization Technique for the Multiple Alignment of Nucleosomal Sequences", Technical Report GIT-GVU-95/07, Graphics, Visualization, and Usability Center, Georgia Institute of Technology, Atlanta, GA, 1995.

Eileen Kraemer, *A Framework, Tools and Methodology for the Visualization of Parallel and Distributed Systems*, Ph.D. thesis, Georgia Institute of Technology, Atlanta, GA, August 1995.

Weiming Gu, Greg Eisenhauer, Eileen Kraemer, Karsten Schwan, John Stasko, Jeffrey Vetter, and Nirupama Mallavarupu, "Falcon: On-line Monitoring and Steering of Large-Scale Parallel Programs", Technical Report GIT-CC-94-21, College of Computing, Georgia Institute of Technology, April 1994.

Eileen Kraemer and John T. Stasko, "Toward Flexible Control of the Temporal Mapping from Concurrent Program Events to Animations", Technical Report GIT-GVU-94/10, Graphics, Visualization, and Usability Center, Georgia Institute of Technology, March 1994.

Eileen Kraemer and John T. Stasko, "The Visualization of Parallel Systems: An Overview", Technical Report GIT-GVU-92/21, Graphics, Visualization and Usability Center, Georgia Institute of Technology, July 1992.

John T. Stasko and Eileen Kraemer, "A Methodology for Building Application-Specific Visualizations of Parallel Programs", Technical Report GIT-GVU-92/10, Graphics, Visualization and Usability Center, Georgia Institute of Technology, June 1992.

John T. Stasko, William F. Appelbe and Eileen Kraemer, "Applying Program Visualization Techniques to Aid Parallel and Distributed Program Development", Technical Report GIT-GVU-91/08, Graphics, Visualization and Usability Center, Georgia Institute of Technology, June 1991.

Eileen Kraemer and W. Michael McCracken, "Test and Evaluation of Adaptability Errors in Software Reuse", Report, Center for Information Management Research, Georgia Institute of Technology, 1991.

INVITED TALKS

"Software Engineering for Concurrent Systems: A Usability Perspective", Georgia Institute of Technology, GVU Brown Bag Seminar Series, December 2007.

"Software Engineering for Concurrent Systems: A Usability Perspective", Michigan State University, Computer Science and Engineering Graduate Seminar Series, November 2007.

"Evaluation of Program Visualization", Wayne State University, Detroit, MI, December 2006.

"Ovarian Cancer: Gene expression profiling and proteomic pattern analysis", Michigan State University, East Lansing, MI, Computer Science and Engineering Departmental Seminar, October 25, 2004.

"Quantifying Quality of Program Visualization", University of Arkansas, Little Rock, AR, Applied Science Graduate Program Seminar, September 24, 2004.

"Gene Expression Analysis and Bioinformatics" at the 11th Annual Suddath Symposium and Annual Georgia Cancer Coalition Spring Symposium on March 29, 2003.

"Empirically Evaluating Software Visualization Technology", tutorial presentation at the ACM Symposium on Software Visualization, June 11, 2003.

"An Evaluation of Gene-Finding Programs for *Neurospora crassa*," University of Georgia Genetics Dept. Seminar, October, 2001.

"Monitoring, Visualization, and Interactive Steering of Distributed Computations," University of Georgia, Simulational Physics Seminar, February 2001.

"Approaches to Fungal Gene Finding", IBC's Third International Symposium on Fungal Genomics, Athens, GA, July 2000.

"Issues in Computational Steering", Technical University Munich, Munich, Germany, March 1997.

"Visualization of Parallel and Distributed Systems", Lucent Technologies, Naperville, IL, February 1997.

"New Frontiers, or Back to the Future", Symposium on Parallel and Distributed Tools, Federated Computing Research Conference, Philadelphia, PA, May, 1996.

"First Year Surprises", Workshop on Academic Careers for Women, Federated Computing Research Conference, Philadelphia, PA, May, 1996.

"Getting a Job", Workshop on Academic Careers for Women, Federated Computing Research Conference, Philadelphia, PA, May, 1996.

"Visualization of Parallel and Distributed Systems", Intel Foundation Fellows Symposium, Intel Corporation, Santa Clara, CA, January, 1994.

STUDENT SUPERVISION

Ph.D., Completed**:**

Phillipa Rhodes, Ph.D., University of Georgia, *Software Visualization: Using Perceptual, Attentional, and Cognitive Concepts to Quantify Quality and Improve Effectiveness,* August 2007.

Ashley George Hamilton-Taylor, Ph.D., University of Georgia, *The Study and Design of Algorithm Animations*, August 2006.

Jinhua Guo, Ph.D., University of Georgia, *Consistent, Interactive Steering of Distributed Computations: Algorithms and Implementation*, August 2002.

Mihail Tudoreanu, DSc, *Economy of Interaction in Program Visualization: Designing Effective Visualization Tools for Reducing User's Cognitive Effort*, Washington University in St. Louis, May, 2002.

Delbert Hart, DSc, *Supporting Exploratory Visualization of Distributed Computations*, Washington University in St. Louis, August, 2000.

Ph.D., In Progress**:**

Shaohua Xie, Yin Xiong, Rui Wang

M.S., Completed:

Manish Agarwal, "Viewing Behavior Model Graphs (VBMGs) for Characterizing User Viewing Behavior in Program Visualizations," MSCS, May 2007.

Shrada Kaldate, MSCS, "Analysis of Viewing Behavior of Program Visualization and Interaction with Individual Differences," May 2007.

Hongyu Yang, "Phylogenetic Tree Display: A Web-based Visualization Tool of Phylogenetic Data," MSCS, May 2007.

Bina Reed, MSCS, "Investigating Characteristics of Effective Program Visualizations: A Testing Environment and The Effect of Comparison Cueing and Exchange Techniques on Viewer Comprehension in Algorithm Animations," May 2006.

Nivedita Kaluskar, *"XML-Based Specification and Automatic Code Generation For Easy Customization of View in the GUS WDK Framework*", MSCS, December 2005.

Yanqi Su, "Comparative Genomics Visualization*"*, MSCS, December 2005.

Sujith Thomas, "An Experiment Designer Tool for Evaluation of Program Visualization Quality*"*, MSCS, December 2004.

Matthew Ross, "A Testing Environment for the Evaluation of Program Visualization Quality*"*, MSCS, August 2004.

Jian Wang, "Analysis of gene-finding programs for *Neurospora crassa* and the Interactive Pattern Search Tool (IPST)", MSCS, August 2004.

Shiming Dong, "Calculation, Visualization, and Manipulation of MASTs (Maximum Agreement Subtrees", MSCS, August 2004.

Vinay Sachdev, "Overcoming over-optimism in time warp via aggregation of fast processes", MSCS, May 2004.

Qin Zhang, "Mini-Lab: A Tool to Visualize Normal Modes of Vibration using Java3D", MSCS, May 2004.

Weicheng Zhang, "A user friendly environment for gene-finding program evaluation (GFPE)", MSCS, August 2003.

Chetna Warade, "Web Services Composition for Microarray Data Analysis", MSCS, December 2003.

Arumugaraja Selvaraj, "Interactive Computational Steering: Conservative vs. Optimistic Steering Approaches", MSCS, December 2002.

David Miller, "An optimistic approach to computational steering", MSCS, May 2002.

Tao Wu, "An Extensible Framework for Developing Visualization Software for Gene Expression Data", MSCS, December, 2001.

Ritu Dhawan, "Evaluation of Web Personalization Software and Visualization with the Help of Usability Study", MSCS, December 2001.

Rong Wu, "Visualization as an Aid for Understanding Distributed Algorithms: An Evaluation," MSCS, December 2001.

Brandon Kohn, "Practical Considerations in Monitoring and Steering of Distributed Computations", MSCS, August 2001.

Renyi Liu, "Strategies for Improving Multiple Alignment of Retrotransposon Sequences", MSCS, August, 2001.

Piyush Burte, "A Visualization-based Tool in Support of High Throughput Nuclear Magnetic Resonance Studies", MSCS, August 2001.

Yin Xiong, "An Exploratory Environment for Concurrency Control Algorithms", MSCS, August 2001.

James Skinner, "Deployment Interface Module for the United States Army", MAMS, May 2001.

Yong Zhang, "A Visualization System for Protein Interaction Mapping Using Java 3D Technology", MSCS, May 2001.

Sneha Rao Kadandale, "Visualizations in Support of Network Monitoring and Control", MSCS, May 2001.

Navin Gupta, "Performance Consideration in the Monitoring and Visualization of Distributed Computations", MSCS, August 2000.

Himabindu Vuppula, "Practical Algorithms for Snapshot Collection in Distributed Processes", MSCS, May 2000.

M.S., In Progress:

Joseph Hohenstern, Conrad Ibanez, , Kelly Storm, Devangana Karr, Matthew Tanner.

Undergraduate students supervised:

Anand Patel, lab assistant, 2005.

Jonathan Lathem, research assistant, 2004.

Darren Wolford, lab assistant, 2002-2005.

Stephen Pavlik, research assistant, 2003-2004.

Drew Wilcoxon, research assistant, 2002-2003.

David Chilton, research assistant, REU program, Summer 2002.

Joseph Horsey, directed study 2000.

Samuel Hopkins, directed study 2000.

Julia Babenko, research assistant, Summer 2000.

Natalie Glase, research assistant, CRA Distributed Mentor Program, Summer 2000.

Bryan Bartram, directed study 1999-2000.

David Miller, Senior Honors Research, research assistant 1999-2000 .

Piotr Misztal, lab assistant, 1999-2000.

TEACHING EXPERIENCE

- At MSU:
  - CSE491 – Human-Computer Interaction (Fall 2007)
  - CSE335 – Software Design (Spring 2008)
- At UGA:
  - CSCI 4800/6800: Human Computer Interaction (yearly)
  - CSCI 2720: Data Structures (yearly)
  - CSCI 1730: C++ and UNIX Systems Programming (yearly)

    - CSCI 8710: Computer Systems Performance Evaluation (Fall 2002, Fall 2004)
    - FRES 1010: Freshman Seminar: Complex Adaptive Systems (Fall 2005)
    - BCMB 8210: Microarray Data Analysis Lectures (Fall 2004, Fall 2005)
    -
- At WashU:
    - CS102 – Computer Science II
    - CS422 – Operating Systems

CURRICULUM DEVELOPMENT

- Development of CSCI 4800/6800: **Human-Computer Interaction**. Focuses on the design, evaluation, and implementation of user interfaces. Includes background on perceptual and cognitive psychology, relevant software design methodologies, and units on experimental design and statistical analysis. Projects foster interaction with other departments.

- Development of CSCI 1730: **C++ and UNIX Systems Programming**. Begins with a substantial unit on "C++ for Java programmers". This four-hour course covers the basics of UNIX systems programming, including file and directory structures, basic and advanced file i/o, process creation, and interprocess communication.

- Development of CSCI 8710: **Computer Systems Performance Evaluation**. This four-hour course introduces the main concepts and techniques needed to plan the capacity of computer systems, predict their future performance under different configurations, and design new applications that meet performance requirements. The course is mainly based on the use of analytic queuing network models of computer systems. These techniques are applied to study the performance of centralized, distributed, parallel, client/server systems, Web server and e-commerce site performance.

HONORS AND AWARDS

- Nominee, University of Georgia Graduate School Outstanding Mentoring Award, 2006.

- NSF CAREER Award, 1998.

- Georgia Tech, Society of Women Engineers, Outstanding Graduate Student in Computer Science, 1998.

- Intel Fellowship, 1993-1994.

PROGRAM COMMITTEES

- ACM Symposium on Software Visualization (2003 - 2008).
- VISSOFT 2007.
- The Fifth Georgia Tech International Conference on Bioinformatics (2005).
- Grace Hopper Conference, New Investigator Papers Committee (2004).

- Supercomputing 2003 (Software Area Chair, Technical Papers Committee), 2006 (Tutorials Committee)

- The Fourth Georgia Tech and UGA International Conference on Bioinformatics (2003).
- Workshop on Bio-Inspired Solutions to Parallel Processing Problems (BIOSP3) (1999-2003).

PROFESSIONAL ACTIVITIES

General Chair, SoftVis'06 (ACM Symposium on Software Visualization).

Member, Diversity Advisory Board, College of Computing, Georgia Institute of Technology.

Reviewer, National Sciences and Engineering Research Council of Canada, 2005.

Participant, Grant Proposal Review Panel, National Science Foundation, 2002 - 2005.

Participant, Grant Proposal Review Panel, National Institutes of Health, 2002, 2004, 2005.

Finance Chair, 2002 IEEE Symposia on Human Centric Computing, Languages and Environments (HCC'02)

Member, Nominating Committee, International Society for Computational Biology, 2000 - 2002.

Member, National Academy of Sciences/Institute of Medicine Committee on Internet Access to the National Library of Medicine's Toxicology and Environmental Health Databases, 3/98 – 3/99.

Session Organizer, Tools for Visualization and Interaction, Pacific Symposium on Biocomputing, 1998, 1999, 2000.

Mini-track Chair, Computational Steering, HICSS-31, January 1998.

Referee for:

IEEE Transactions on Parallel and Distributed Systems
IEEE Transactions on Systems, Man, and Cybernetics
CHI2006 (ACM)
IEEE Visualization 2004, 2005
Grace Hopper Conference, 2004
Grace Hopper Scholarship Competition, 2004
Journal of Parallel and Distributed Computing, 2004
International Journal of Human-Computer Systems, 2004
Supercomputing 1996, 2001, 2002, 2003
39th Annual ACM Southeast Conference, 2001
ACM Transactions on Software Engineering and Methodology
Bioinformatics
Heterogeneous Computing Workshop (HCW 2000)
IEEE Transactions on Visualization and Computer Graphics
PSB2000, Pacific Symposium on Biocomputing
PSB'99, Pacific Symposium on Biocomputing
PSB'98, Pacific Symposium on Biocomputing

HICSS'98, Hawaii International Conference on Parallel Processing
UIST'98, Eleventh ACM Symposium on User Interface Software and Technology
IPPS'97, International Parallel Processing Symposium
VL'97, Visual Languages Conference
ISMB'97, Intelligent Systems for Molecular Biology
VL'96, Visual Languages Conference
ICPP 1996, International Conference on Parallel Processing
ISMB'96, Intelligent Systems for Molecular Biology
IEEE Transactions on Software Engineering
IEEE Transactions on Parallel and Distributed Systems
Journal of Parallel and Distributed Computing
The Computer Journal
Software-Practice and Experience (SPE)

Member of:

IEEE
ACM
SIGGRAPH
SIGBIO

UNIVERSITY SERVICE

Faculty Research Grants Committee: Physical and Mathematical Sciences 2005-2006.

Conflict of Interest Committee, 2003, 2004, 2005.

Member, teaching team for BCMB 8210 (Computational Methods in Bioinformatics) 2004, 2005.

Search Committee for Eminent Scholar in Bioinformatics, 2001-2002, 2002-2003, 2004-2005.

Faculty Fellow, Franklin Residential College, 2001-2002, 2002-2003.

Search Committee for Physics/Astronomy Dept., 2001

DEPARTMENTAL SERVICE

ACM Advisor 2002-2007.

Chair, Web Committee, 2005-2006.

Member, Web Committee, 2002-2005.

Member, Graduate Student Recruiting Committee, 2000-2001.

Member, Faculty Search Committee, 1998-2001.

Member, Long Term Planning Committee, 1998-1999.

Contracts, the law states, should be awarded when a Federal agency is acquiring something â€“ an improved computer network, for example. Grants and cooperative agreements, meanwhile, should be awarded when a Federal agency is providing assistance, such as funding for a lower-income housing program in an at-risk urban community.Â Finally, the grant-making agencies create internal and external policies and procedures based on the OMB guidance. (See chart.)Â To learn more about current grant policies, click below for summaries of the laws and their intended impact, beginning with the most recent All ARC grants align with the investment priorities outlined in our current Strategic Plan and reflect state plans and strategies. ARC also issues specific Requests for Proposals for research and evaluation contracts on topics directly impacting economic development in the Appalachian Region. How It Works. Every ARC investment meets one or more of our strategic investment priorities and yields measurable results. Learn about our different grant opportunities and next steps potential applicants must take. Â¡ Current Index # and Current Fund #. Â§ For proposals that are non-competing or competing continuations or supplements. Leave blank if the proposal is new or a revision of an unfunded prior proposal.Â Â¡ Cooperative Agreement Â§ Somewhere along a spectrum between a grant and a contract â€“ the sponsor is more involved than in a grant. Â¡ Subaward Â§ When the Funding Agency is the recipient of a primary award, specify the agency which will grant the primary award to the Funding Agency. Â¡ Clinical Trial Â§ A research project involving human subjects.