

JAMES R. VALLINO
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EDUCATIONAL EXPERIENCE

- 9/93 to 11/97 University of Rochester, Rochester, NY**
Ph.D. Computer Science, Thesis - "Interactive Augmented Reality", May 1998.
MS Computer Science. May 1995.
- 9/75 to 8/76 University of Wisconsin, Madison, WI.**
MS Electrical Engineering. Thesis - "SWITCH, a computer peripheral device which monitors 256 points", August 1976.
- 9/71 to 5/75 Cooper Union, New York, NY.**
BE Mechanical Engineering, May 1975.

ACADEMIC EXPERIENCE

- 12/97 to present Rochester Institute of Technology, Rochester, NY**
Professor (9/08 -)
Associate Professor (9/02 - 8/08)
Assistant Professor (12/97 - 8/02)
Department of Software Engineering (7/02 -)
Departments of Computer Science (50%) and Software Engineering (50%) (9/00 to 7/02)
Department of Computer Science (12/97 to 9/00)

Notable activities:

- Obtained NSF CCLI grant for development of laboratory and three-course sequence on Real-Time and Embedded Systems. Lab and courses are joint with Computer Engineering.
- Coordinated department's activities during ABET accreditation in 2002 and 2004.
- Major contributor in the development of the Java version of the CS first year sequence including an honors version of the courses,
- Converted two Software Engineering courses from traditional lecture/lab to studio format,
- As part of the First-In-Class project funded by Sun Microsystems, supervised the development of a debugger for Sun's KVM, a Java virtual machine that runs on Palm PDA's.

- 9/94 to 12/95 University of Rochester, Rochester, NY**
Teaching Assistant
- 1/85 to 12/88 Brookdale Community College, Middletown, NJ**
Adjunct Instructor. Taught Basic and C programming classes.
- 12/78 to 8/93 Monmouth County Park System, Middletown, NJ**
Outdoor recreation instructor and trip leader. Taught classes in cross-country skiing, hiking, biking and canoeing.
- 9/75 to 5/76 University of Wisconsin, Madison, WI**
Teaching Assistant. Received Excellence in Teaching Award

INDUSTRIAL EXPERIENCE

- 3/06 to 5/06 CDS Real Time Embedded Software, Pratt & Whitney, East Hartford, CT**
- Reviewed design approach for developing fault-tolerant engine controller software. Wrote Standard Work Description for designing the cyclic executive schedules.
 - Defined requirements and implemented first phase for a tool to assist with the specification and code generation for reporting telemetry data from P&W's F135 engine on the F-35 Joint Strike Fighter.

- Member of task force defining Preliminary System Safety Assessment and Failure Modes and Effects Analysis process steps.

12/05 to 2/06 Software Engineering Laboratory, NASA Goddard Space Flight Center, Greenbelt, MD

- Reviewed the current state of SEL's Requirements to Design to Code methodology that generates designs and code from requirements scenarios. Formulated a mechanism by which safety property scenarios can be added to the methodology.
- Studied NASA's software systems safety procedures.

8/05 to 11/05 Staff Fellow, Office of Science and Engineering Laboratories, US Food and Drug Administration, Rockville, MD

- Investigated use of formal techniques for the design of medical devices. Provided guidance for using Eclipse as a platform for integrating formal method tools.
- Studied medical device regulations and reviewed software aspects of device pre-market applications.
- Suggested collaborations to increase relevance of computing curricula to the needs of regulated industries.

6/98 to 8/98 Xerox Corporation, Webster, NY

- Designed and implemented an augmented reality document viewer. This system tracked a piece of paper that the user held and augmented the image of the paper with web page content. The user navigated the web by pointing at hyperlinks on the page and speaking commands. The web browser ran in a virtual frame buffer and page images were copied into the texture memory of the Silicon Graphics workstation on which the system ran. These texture maps were applied to a polygon and rendered for correct merging with the live video image at the location of the real paper view.

1/86 to 8/93 Siemens Corporate Research, Inc., Princeton, NJ

- Completed feasibility study for Siemens Medical Systems (SMS) on options for development of a low cost teleradiology system. Study showed that cost and development time targets were achievable. Developed a prototype teleradiology application under MS Windows.
- Implemented a prototype video rate image processing system using a Datacube MV20. This system removed the effects of collimating the x-ray beam on a medical angiography system thus reducing patient and staff dosage while maintaining acceptable image quality for the procedure.
- Assisted Siemens Energy & Automation (SE&A) in development of product and marketing strategy for incorporating networked communications into current and future product lines. Outlined options for field bus and cell bus architectures. Educated SE&A personnel in OSI protocol standards. Developed prototype demonstration of networked communications on SE&A products using a sub-set of the PROFIBUS field bus standard.
- Investigated the emerging virtual reality technologies to determine applicability in Siemens Operating Companies. Assessed the potential for applying image processing techniques to improve features of the Siemens Analytical X-Ray Instruments x-ray diffractometers.
- Worked with Siemens semiconductor research organization to move SECS communications standard into their fabrication facilities. Developed real-time data gathering system for monitoring semiconductor processing. Wrote Application Note (published in the international SEMI standards manual) describing implementation of the SECS Messaging Standard, a mechanism for using SECS in an OSI protocol.
- Imaging Department representative on the Computer Council responsible for coordinating department computing resource requests and needs with the Computer and Network Administrators.

4/84 to 1/86 AVL, Inc., Tinton Falls, NJ

- Designed and implemented an interpreter system with 'C' like syntax to provide a user programmable graphics language on an IBM-PC/AT computer. Using lex and yacc for parsing, this system generated an interpreted and machine language run-time structure.
- One of two software engineers working on a bit-slice graphics engine. Contributed to design of the hardware architecture and microcode format. Designed and implemented a debugging system with interfaces to the hardware, a hardware simulator and the application programs.
- Project manager for the initial release of the AVL Starburst Computer Graphics System. Coordinated activities of nine software engineers in three project groups. Interacted with Product Planning and QA to determine product descriptions and gain final acceptance.
- Wrote device drivers for the AVL Startrak film recorder. Also provided test/diagnostic software and film calibration programs written in C.

11/77 to 4/84 AT&T Information Systems/Bell Laboratories, Holmdel, NJ

- Lead software engineer for the AT&T Personal Computer Terminal 510. Responsible for firmware architecture, terminal feature definition, assignment of coding and developing sections of the final assembly code. Wrote UNIX-C utilities for downloading executable code/symbol tables to the HP64000 development station.
- Designed and microcoded a bit slice processor to execute two dimensional graphics compression algorithms.
- Specified and supervised FCC Part 64J and Part 15 Compliance testing on AT&T Dimension System 75 & 85 business terminals and peripherals.

9/76 to 10/77 Ebasco Services Inc., New York, NY

- Designed and specified instrumentation and control systems for Arizona Public Service Cholla Units 2, 3 and 4. Responsible for integrating the plant computer with all subsystems in the power plant. Designed and performed several functional tests on analog control systems, control boards, and digital computer systems.

PATENTS

US 6,408,257 Augmented-reality display method and system (18 June 2002)

REFERRED JOURNAL ARTICLES

K. N. Kutulakos and J. Vallino, "Calibration-Free Augmented Reality," *IEEE Transactions on Visualization and Computer Graphics*, v4 n1, pp 1-20, 1998.

J. R. Vallino and J. J. Skiles, "SWITCH - An Intelligent 256-Point Contact and Voltage Monitor for Computer Use," *IEEE Transactions on Industrial Electronics and Control Instrumentation*, vol. IECI-25, no. 2, pp. 141-145, May 1978.

J. L. Stephenson, et. al., "Video Detection and Tracking of Tracer Particles in a Model Packed-Bed Reactor," *IEEE Transactions on Instrumentation and Measurement*, vol. IM-26, no. 2, pp. 88-91, June 1977.

CONFERENCE PAPERS

F. Naveda, et al., "The Road We've Traveled: 12 Years of Undergraduate Software Engineering at the Rochester Institute of Technology," submitted to ITNG 2009.

J. Vallino and R. Czerniskowski, "Interdisciplinary Teaming as an Effective Method to Teach Real-Time and Embedded Systems Courses," submitted for special issue on embedded systems education of ACM SIGBED Review.

- J. Vallino and R. Czerniskowski, "Interdisciplinary Teaming as an Effective Method to Teach Real-Time and Embedded Systems Courses," *Proceedings of 2008 Workshop on Embedded Systems Education*, Atlanta, GA. October 2008.
- D. Chandler and J. Vallino, "Control System Plant Simulator: A Framework for Hardware-In-The-Loop Simulation," *Proceedings of 2008 ASEE Annual Conference*, Pittsburgh, PA., June 2008.
- J. Vallino, "If You're Not Modeling, You're Just Programming: Modeling throughout an Undergraduate Software Engineering Curriculum," T. Kühne, Ed.: *MoDELS 2006 Workshops*, Lecture Notes in Computer Science v4364, Springer, pp. 291 – 300.
- J. Vallino, "If You're Not Modeling, You're Just Programming: Modeling throughout an Undergraduate Software Engineering Curriculum," *Model-Driven Engineering Language and Systems 2006 Educators Symposium*. Genova, Italy. October 2006.
- J. Vallino and R. Czernikowski, "Thinking *Inside* the Box: A Multi-Disciplinary Real-Time and Embedded Systems Course Sequence," *Proceedings of Frontiers in Education Conference*. Indianapolis, IN. October 2005.
- M. Lutz and J. Vallino, "Concurrent System Design: Applied Mathematics & Modeling in Software Engineering Education," *Proceedings of 2005 American Society of Engineering Education Conference*. Portland, OR. June 2005
- R. Czernikowski and J. Vallino, "Embedded Systems Courses at RIT," *Proceedings of Workshop on Computer Architecture Education, Special Session on Embedded Systems*. Madison, WI. June 2005.
- J. Vallino and R. Czernikowski, "Work In Progress - Multi-disciplinary Real-Time and Embedded Systems Laboratory and Course Sequence," *Proceedings of the Frontiers in Education Conference*. Savannah, GA. October 2004.
- M. Sebern, et. al., "Initial Experiences in ABET Accreditation of Software Engineering Programs," *Proceedings of the Frontiers in Education Conference*. Boulder, CO. November 2003.
- J. Vallino, "Design Patterns: Evolving from Passive to Active Learning," *Proceedings of the Frontiers in Education Conference*. Boulder, CO. November 2003.
- J. Vallino and C. M. Brown, "Haptics in Augmented Reality," *Proceedings of the IEEE International Conference on Multimedia Computing and Systems*, Florence, Italy, June 1999.
- K. N. Kutulakos and J. Vallino, "Non-Euclidean Object Representations for Calibration-Free Video Overlay," *Proc. International Workshop on Object Representation for Computer Vision*, April 1996.
- K. N. Kutulakos and J. Vallino, "Affine Object Representations for Calibration-Free Augmented Reality," *Proc. IEEE Virtual Reality Annual Symposium*, April 1996, pp. 25-36.
- K. N. Kutulakos and J. Vallino, "Affine Object Representations for Calibration-Free Augmented Reality," *Proc. ARPA Image Understanding Workshop*, February 1996.

BOOK CHAPTERS

- J. McDonald, M. Sebern and J. Vallino, "Software Engineering Program Accreditation" in the United States." In *Software Engineering: Effective Teaching and Learning Approaches and Practices*, H. Ellis, S. Demurjian and J. F. Naveda, (eds.), Information Science Reference, 2008.
- J. Vallino and K. N. Kutulakos, "Augmenting Reality Using Affine Object Representations." In *Fundamentals of Wearable Computers and Augmented Reality*, W. Barfield and T. Caudell, (eds.), Lawrence Erlbaum Associates, Mahwah, NJ, 2001.
- J. Vallino, "Augmenting Reality Without Camera or Scene Calibration" in *Augmented Reality: Placing Artificial Objects in Real Scenes*, Reinhold Behringer, Gudrun Klinker, David W. Mizell, (eds.), A. K. Peters, Ltd., Natick, MA, 1999.

- R. Chou, P. Liu, J. Vallino and M-Y Chiu, "Behavior-based learning to control IR oven heating: preliminary investigations." In *Machine learning: from theory to applications. Cooperative research at Siemens and MIT*, S. J. Hanson, W. Remmele and R. L. Rivest, (eds.) Berlin: Springer-Verlag, 1993, pp. 229-40.
- J. Vallino and T. Farlow, "Version Control Systems," in *Accessing C Tips from the Experts*, Strawberry Software, Inc., Ed. New York, Van Nostrand Reinhold, 1989.

TRADE JOURNAL ARTICLES

- J. Vallino, "Product Watch - PVCS 2.0," *PC Tech Journal*, vol. 6, no. 10, pp. 131-132, October 1988.
- J. Vallino, "Product Watch - MKS RCS 4.2c," *PC Tech Journal*, vol. 6, no. 10, pp. 132-136, October 1988.
- J. Vallino, "Product Watch - Seidl Version Manager 2.0, TLIB 4.02," *PC Tech Journal*, vol. 6, no. 3, pp. 141-146, March 1988.
- J. Vallino, "Tracking Code Modules," *PC Tech Journal*, vol. 4, no. 9, pp. 50-70, September 1987.
- J. Vallino, "Tech Notebook 76 - Environment Variables," *PC Tech Journal*, vol. 5, no. 5, pg. 51, May 1987.
- J. Vallino, "Tech Notebook 69 - Environment Expansion," *PC Tech Journal*, vol. 4, no. 11, pg. 49, November 1986.

REPORTS, OTHER

- J. R. Vallino, "Datacube MV200 and ImageFlow User's Guide," CS-TR 590 and NRL 95.3 National Resource Lab. for the Study of Brain and Behavior, Department of Computer Science, University of Rochester, June 1995.
- "E13-90 Standard for SEMI Equipment Communications Standard Message Service (SMS) Application Notes," in 1990 SEMI Standards, vol 2., Equipment Automation. Semiconductor Equipment and Materials Institute, 1990.
- J. M. Baratz, et. al., "Letter to the Editor: Comment on 'A Prototype SECS Message Service for Communication in the Semiconductor Manufacturing Environment'," *IEEE Transaction on Semiconductor Manufacturing*, vol. 2, no. 4, pg 178, November 1989.

PRESENTATIONS

- "Software Curricula vs. the Needs of a Regulated Industry," Staff Presentation, OSEL Division of Electrical and Software Engineering, US Food and Drug Administration, November 2005.
- "Real-Time Java," Staff College Colloquium, Office of Science and Engineering Laboratories, US Food and Drug Administration, October 2005.
- "EMACS - an extensible editor," RIT CS Languages for Lunch Colloquium Series, April 2005
- "Teaching Multi-Disciplinary Inside the Box Thinking," First Annual Conference on Computing and Information Sciences, Rochester Institute of Technology, January 2005.
- "Design Patterns: Evolving from Passive to Active Learning," Rochester Institute of Technology, Department of Software Engineering Colloquium, October 2003.
- "Collaborative Learning in GCCIS: The Good, the Bad and the Ugly," Rochester Institute of Technology, Faculty Institute on Teaching and Learning, May 2003.
- "There's Something to It...Reflections from the XP Universe Conference," Rochester Institute of Technology, Department of Computer Science, Colloquium Series, 25 October 2001.
- "Real-time Java," SUNY – Geneseo, Department of Computer Science, Seminar Series, 8 March 2001.
- "Real-time Java," Rochester Java User's Group, 18 January 2001.

“University Research Threads,” Kodak Engineering Conference, 28 September 2000.

“Real-time Java,” Kodak Engineering Conference, 28 September 2000.

“Object-Oriented Programming,” Rochester Institute of Technology College and Careers Day, 5 August 2000.

“Real-time Java,” ACM Rochester Section Monthly Meeting, 13 June 2000.

“Real-time Java,” Rochester Institute of Technology, Department of Computer Science, Colloquium Series, 11 May 2000.

“Augmented Reality Document Viewer,” Rochester Institute of Technology, Department of Computer Science, Colloquium Series, 4 April 2000.

“Object-Oriented Programming,” Rochester Institute of Technology College and Careers Day, August 1999.

“Haptics in Augmented Reality,” IEEE International Conference on Multimedia Computing and Systems, June 1999.

“Interactive Augmented Reality,” RIT Center for Imaging Science Colloquium Series, 9 December 1998.

“We Don't Need No Stinkin' Calibration,” First IEEE International Workshop on Augmented Reality, November 1998.

“Haptics in Augmented Reality,” IEEE Western New York Image Processing Workshop, 18 September 1998.

“Interactive Augmented Reality,” SUNY – Geneseo, Department of Computer Science, Seminar Series, 17 September 1998.

“Interactive Augmented Reality,” ACM Rochester Section Monthly Meeting, 21 May 1998.

“Interactive Augmented Reality,” Rochester Institute of Technology, Department of Computer Science, Colloquium Series, 13 April 1998.

“Interactive Augmented Reality Using Uncalibrated Cameras,” IEEE Western New York Image Processing Workshop, 19 September 1997.

“Augmenting Reality with Minimal Calibration,” SUNY – Geneseo, Department of Computer Science, Seminar Series, 15 April 1996.

WORKSHOPS

“Rubrics – Start to Finish,” FIE 2008 Workshop, October 2008, Saratoga Springs, NY.

“Rubrics – Start to Finish,” SIGCSE 2008 Workshop, March 2008, Portland, OR.

“Rubrics: Start to Finish”, RIT Faculty Institute on Teaching and Learning, May 2007.

PROGRAM COMMITTEES

2008 ASEE Annual Conference, Software Engineering Constituent Committee Program Chair.

IEEE Workshop on Virtual Environments and Web Applications for e-Learning, Program Committee

Teaching Communication Skills in the Software Engineering Curriculum: A Forum for Professionals and Educators, Steering Committee

COURSES TAUGHT

CS231 Computer Science I

CS232 Computer Science II

CS233 Computer Science III

CS334 Computer Science IV

CS234 Accelerated Computer Science I

SE101 Software Engineering Freshman Seminar

SE361 Software Engineering

SE362 Engineering of Software Subsystems

SE440 Software Architecture

SE441 Principles of Concurrent Software Systems

CS235 Accelerated Computer Science II
CS350 Computer Organization
CS520/720 Computer Architecture
CS541 Operating Systems II

SE461 Real-Time and Embedded Systems
SE462 Modeling of Real-Time Systems
SE463 Performance Engineering of Real-Time and
Embedded Systems
SE561/562 Senior Project I/II