

Robert Andrew Kolvoord

Work Address

MSC 4102
James Madison University
Harrisonburg, VA 22807
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Professional Preparation

University of Virginia (Charlottesville, VA)

Bachelor of Arts in Physics with High Distinction, 1983

University of Virginia (Charlottesville, VA)

Master of Science in Materials Science, 1985

Cornell University (Ithaca, NY)

Doctor of Philosophy in Theoretical and Applied Mechanics, 1990

Appointments

James Madison University - Professor (2003-present)

Assistant (1995-1999) and Associate Professor (1999 - 2003)

Faculty member in the Integrated Science and Technology program.

Selected Courses taught:

Analytical Methods I, II, III - lower division courses
Simulation and Modeling - an upper division course in
discrete and continuous modeling and simulation.
Data Visualization – senior seminar course.
GIS and the Environment
Geospatial Technologies – intro to GIS

Co-Director, James Madison University Center for STEM Education and Outreach (2008 – present)

Responsible for coordinating education and outreach activities across campus and for developing externally funded projects to improve STEM education in grades K-16.

Associate Dean of Educational Technologies, James Madison University (1999)

Member of the senior management team of the Libraries and Educational Technologies division with responsibility for distance learning program support, integration of educational technology with curricula, support for faculty development, educational media production and licensing, and coordination of technology resources in the colleges.

Director, CISAT Medialab (1996 - 1998)

Director of a multimedia production facility. Managed a staff of two professionals and 8-10 student assistants in providing instructional technology design and support. Pursued external funding for projects and develop innovative applications of educational technology.

Senior Research Associate, Univ. of Arizona (1994–1995)

Directed Hands-On Image Processing project funded by the Annenberg/CPB Math and Science Project, managed curriculum development and publication, evaluated program effectiveness in schools, and developed external funding opportunities for the Image Processing for Teaching project

Associate Director, Center for Image Processing in Education (1992-1995)

Co-founder of the Center, managed financial affairs and directed outreach and development efforts. Co-director of NSF-funded project in developing technology curriculum

Imaging Team Associate, Galileo Space Probe, NASA (1990-1992)

Performed data support and analysis tasks for the Galileo project as the spacecraft completed its Earth-Moon and Asteroid Encounters

*Selected
Publications*

Kolvoord, R.A., J.A. Burns and M.R. Showalter (1990). Periodic features in Saturn's F ring: evidence for nearby moonlets. *Nature* **345**, 695-697.

Executive Editor, **HIP Physics Curriculum CD-ROM** (1994). Published by Tom Snyder Productions. Curriculum collection of image processing exercises for high school and college Physics

Executive Editor, **Hands-on Image Processing CD-ROM and Video** (1996). Published by the Annenberg/CPB Math and Science Project and the Center for Image Processing in Education. Hypermedia tutorial and video for learning image processing applications in education.

Executive Editor, **HIP Mathematics** (1998). Published by the Center for Image Processing in Education. Curriculum collection for middle school mathematics.

Kolvoord, B. (1999). Data Visualization Tools for Science and Math. **The Journal of Mathematics and Science: Collaborative Explorations**. Vol. 2(2), pp. 175-182.

Executive Editor, **Biotechnologist** (1999). Published by the Center for Image Processing in Education. Curriculum collection for community college and college biotechnology classes.

Klevickis, C, R.A. Kolvoord, K. Giovanetti, T. Daughtrey, S. Fairchild, M. Handley and D. Peterson (2004). First Steps toward Change in Teacher Preparation for Elementary Science. **Journal for Mathematics and Science: Collaborative Efforts**, Vol 7, Part 1, pp. 37-48.

Keranen, K. and R. A. Kolvoord (2008). **Making Spatial Decisions Using GIS**. ESRI Press, Redlands, CA.

Keranen, K. and R. A. Kolvoord (2011). **Making Spatial Decisions With GIS, 2nd Edition**. ESRI Press, Redlands, CA.

Kolvoord, R., M. Charles and S. Purcell (2011). **What Happens After the Professional Development: Case Studies on Implementing GIS in the Classroom**. Chapter in Learning Science Through the Innovative Use of Geospatial Technologies Designing Effective Learning Tools and Programs for K-16 Settings. Barnett, Michael; MaKinster, James; Trautmann, Nancy (Eds.). Springer-Verlag. **In press**.

*Synergistic
Activities*

Principal Investigator, Hands-on Image Processing Project, funded by the Annenberg/CPB Math and Science Reform Project, \$515,000, June 1993-December 1996.

Co-Principal Investigator, Image Processing for Technological Education, funded by the National Science Foundation's Advanced Technological Education program, \$1,250,000, January 1995 - December 1997. Renewal funding of \$700,000 for March 1997-February 1999.

Principal Investigator, Project VISM, Visualization in Science and Mathematics. Funded by the National Science Foundation \$766,288, May 1999-September 2003.

Principal Investigator, National Center for Rural STEM Education: Geospatial Technologies. Funded by the U.S. Department of Education \$297,600, October 2005 – September 2007.

Principal Investigator, Bridging the Valley. Funded by the National Science Foundation, \$2,468,121, September 2008 – August 2011.

Collaborators

Dr. Mike Charles, Pacific University; Ms. Kathryn Keranen; Dr. Raymond McGhee, SRI, Inc.; Dr. Steve Moore, Science Approach; Dr. Steve Purcell, James Madison University; Dr. Diana Sinton, University of Redlands; Dr. Mano Tolliver, Longwood University; Dr. David Uttal, Northwestern University. Dr. Joseph Burns, Cornell University – PhD Advisor; Dr. Richard Greenberg, University of Arizona – Postdoctoral Advisor