

Matt R. Mechtley

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Education

Arizona State University, 2002–2007

B.S. Mathematics, *Magna Cum Laude*

Relevant Coursework: Abstract Algebra, Chaos and Nonlinear Dynamics, Linear Algebra, Real Analysis, String Theory, Topology

Research Experience

Undergraduate Research Assistant 2006–2007
Dr. Rogier Windhorst Arizona State University
Developed a cross-platform interactive simulation of the Hubble Ultra Deep Field, allowing users to move about the dataset in three dimensions. Incorporated the Friedmann-Lemaître-Robertson-Walker metric to demonstrate non-Euclidean aspects of the expanding Universe's geometry and other key concepts in cosmology.

Employment

Simulations Programmer 2007–Present
Flashbang Studios, LLC Tempe, AZ
System development and programming for games, simulations, visualizations, and other interactive media. Emphasis on physics simulation, 3-dimensional graphics and animation, developing autonomous agents, and web integration. Supervisor: Matthew Wegner.

Publications

“Interactive Cosmology Visualization Using the HUDF,” **M. Mechtley**, R. A. Windhorst, L. M. Will, and S. H. Cohen (2009, in preparation).

Conference Presentations and Posters

“Appreciating Hubble at Hyperspeed: A Teaching Tool for Students & Educators,” **M. Mechtley**
Arizona/NASA Space Grant Undergraduate Research Program Statewide Symposium, April 27-28, 2007

“How can the James Webb Space Telescope measure First Light, Reionization, and Galaxy Assembly?,” R. A. Windhorst, R. A. Jansen, S. H. Cohen, **M. Mechtley**, H. Yan, and C. Conselice
American Astronomical Society 2007 Winter Meeting, Jan. 5-10, 2007

“Appreciating Hubble at Hyper-speed: A Web-tool for Students and Teachers,” L. M. Will, **M. Mechtley**, S. H. Cohen, R. A. Windhorst, S. Malhotra, J. Rhoads, N. Pirzkal, and F. Summers
American Astronomical Society 2007 Winter Meeting, Jan. 5-10, 2007

Honors and Awards

NASA Space Grant Undergraduate Research Fellowship, 2006–2007

Service and Outreach

Officer, Arizona State University Math Club, 2006–2007

Web Administrator, International Game Developers Association, Phoenix, AZ Chapter, 2003–2008

Numerous Education and Public Outreach projects for Arizona/NASA Space Grant Consortium, 2006–2007

Technical Skills

Operating Systems

Proficient: GNU/Linux, Mac OS X, Unix (BSD, Solaris), Windows XP

Programming Languages

Proficient: C#, Objective-C, Java, Javascript, Perl, PHP

Familiar: C++, Maple, Matlab

Software

Proficient: \LaTeX , Photoshop, Unity

Familiar: 3D Studio MAX, Maya

Interests

Research

Observational Astrophysics and Cosmology, Galaxy Formation and Evolution, Applications of Algebra and Topology to Physics and Cosmology

Personal

Hiking, Uni- and Bicycling, Do-It-Yourself Electronics, Social and Interactive Media, Science Outreach