

# Michael Galloy

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## Profile

Nine years professional experience in development, consulting, and teaching scientific programming, visualization, and algorithm development in both individual and team environments.

## Experience

### **OPEN SOURCE PROJECTS BOULDER, CO**

**2006-PRESENT**

Independent projects

- Developed, maintained, and managed open source project IDLdoc 3.0 available at [idldoc.idldev.com](http://idldoc.idldev.com). IDLdoc 2.0 has been downloaded almost 1400 times from ITT VIS code bank.
- Created a unit testing framework, mgunit, available at [mgunit.idldev.com](http://mgunit.idldev.com).
- Created an IDL command line replacement, rIDL, available at [ridl.idldev.com](http://ridl.idldev.com).
- Articles and demos posted at [michaelgalloy.com](http://michaelgalloy.com).

### **TECH-X CORPORATION BOULDER, CO**

**2006-PRESENT**

#### **RESEARCH MATHEMATICIAN**

Responsible for obtaining funding and executing research in areas supporting scientific computation.

- Principal Investigator for Phase II NASA SBIR Grant NNX09CA72C, “Remote Data Exploration with IDL”.
- Principal Investigator for IR&D in using GPUs for tomography.

#### **SOFTWARE DEVELOPER II**

Responsible for writing IDL and Python computational and visualization software in support of physicists.

- Principal Investigator for Phase I NASA SBIR Grant NNX08CA99P, “Remote Data Exploration with IDL”. Contributed code to IDL-OPeNDAP bindings.
- Contributed to FastDL and GPULib projects. These projects provide IDL bindings for high performance computing libraries.
- Help maintain VorpableView, an IDL GUI for visualizing VORPAL particle physics datasets.
- Developed TxView, a Python GUI for visualizing several different particle physics dataset formats.

**RESEARCH SYSTEMS, INC. BOULDER, CO**  
**SENIOR INSTRUCTOR/CONSULTANT**

**2001-2006**

Responsible for all aspects of teaching IDL courses, creating and maintaining courseware and assisting the consulting group

- Designed, wrote and produced class methodology for teaching all levels of IDL courses. Collaborated with coworker in the creation and maintenance of training manuals and example code for courses. Additionally, originated, designed and implemented courseware for iTools Programming and Advanced Topics in IDL.
- Taught IDL courses of all levels to over 750 students nationally and internationally. Instructor evaluations achieved a mean of 4.5 out of 5. Successfully developed content for custom courses based upon student request. Conducted shoulder-to-shoulder instruction/consulting.
- Conceived, created, maintained and updated IDLdoc, a tool for generating documentation of IDL code. This resulted in IDLdoc becoming the standard for documenting code produced by the RSI consulting group. Furthermore, IDLdoc use is spreading in the IDL user community with over 900 downloads.
- Advised and consulted on projects involving ENVI user functions and 3D visualizations.
- Through conducting internal classes and answering informal questions became a resource for tech support, sales engineers, instructors, and consultants at RSI.
- Contributed on a regular basis to the IDL user community with code and whitepapers on the RSI code library.
- Successfully helped ENVI development team by coding and bug finding/fixing.

**ADVANCED TECHNOLOGIES, QWEST BOULDER, CO**  
**MEMBER, TECHNICAL SERVICES**

**1999-2000**

Member of a group of mathematicians solving optimization problems involving acquisition and deployment of resources

- Designed, coded, and maintained SONET ring planning software in a team environment. Employed extreme programming in all phases of the project. Responsible for maintaining the performance metrics for the team. Using Java, implemented linear programming and graph theory algorithms.
- Created a variety of mathematical models to study DSL qualification.

**TRW AURORA, CO**

**1999**

Researched algorithms involving genetic algorithms

- Qualified for security clearance

**BLACK HILLS STATE UNIVERSITY, SPEARFISH, SD**  
**ASSISTANT PROFESSOR**

**1998-1999**

Tenure track position in the Mathematics Department

- Taught Calculus sequence and College Algebra courses. Obtained “Excellent” student evaluations in all courses.
- Invited to serve on the Dean of Arts and Sciences’ technology panel.

### Education

University of Kentucky, Lexington, KY — Ph.D., Mathematics, 1998  
Ph.D., Mathematics, 1998  
Fellowship  
Major area in Complex Analysis

Rose-Hulman Institute of Technology, Terre Haute, IN  
B.S., Mathematics, 1993  
Sousley Award for Outstanding Senior in Mathematics  
Minors in Computer Science and Literature

### Invited talks

- “GPULib with IDL 8.0.” IDL User Group Meeting. Boulder, CO. February 24, 2010.
- “GPULib with IDL 8.0.” VISualize 2010. Washington, DC. May 19, 2010.

### Publications

- David Fillmore, Michael Galloy, Peter Messmer. “Parallel IDL and Python for Earth and Space Science Data Analysis.” Poster at AGU 2007.
- Peter Messmer, Paul Mallowney, Mike Galloy, Brian Granger, Dan Karipides, David Fillmore, Nate Sizemore, Keegan Amyx, Dave Wade-Stein. “GPU Computing in High-Level Languages.” Poster at SIAM Conference on Parallel Processing for Scientific Computing 2008.
- Michael Galloy, Peter Stoltz, Brian Granger, Doug Dechow. “TxView: A Tool for Interactive Analysis of Remote Accelerator Simulation Data.” Poster at PAC 2007.
- Michael Galloy. “Making Regular Expressions Your Friends.” RSI User-Contributed Library. 2005.
- Michael Galloy and Mark Piper. *Advanced Topics in IDL*. 2004.
- Michael Galloy. *Harmonic Univalent Mappings on the Unit Disk and the Punctured Unit Disk*. Dissertation. 1998.
- Jason E. Fulman, Michael D. Galloy, Gary J. Sherman, Jeffrey M. Vanderkam. “Counting Nilpotent Pairs in Finite Groups.” *Ars Comb.* 54: (1999).

### Skills

Languages: IDL, Python, C

Web: HTML, CSS, Javascript

Software technologies: Subversion, Trac, Eclipse, UNIX, Mac OS X

## Referrals

Available on request.