

## Dwight D. McKay

Senior Data Science Engineer  
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### Expertise – Data Science, High Performance Computing, Visualization

Seeking new challenges and opportunities to create innovative technical solutions.

Experienced, highly skilled IT professional in the areas of data science, HPC and visualization. Contributes through technical and business insights, creation of technologies, visual representations, processes and services. Promotes and creates advanced technologies and techniques. Guided systems team through IT group reorganization and rapid growth in staff, customers and systems. Led implementation of new visualization facility including design of physical facility, selection of equipment and hiring of support staff.

Skills include creating and nurturing innovative technologies and techniques; data analysis, insight and visualization, software design and development in C, Objective C, Python, Bash; recruiting, developing and retaining technical talent, project management, technical writing,.

### Experience

#### **Purdue University, West Lafayette Indiana, 1985-Present** ***Senior Data Science Engineer, IT Research Computing, 2013-Present***

Currently develops analyses, visualizations and software to support research projects including Purdue's HUBzero and NanoHUB projects. Provides insights into user behavior on large scale, international web-based HUBs used for funding justification, user recommendations and educational research.

- Developed prototype recommendation system for NanoHUB based on graph analysis of user download behavior. Automatically published suggested download groupings based on this analysis on NanoHUB web site.
- Detected and began work to correct data quality problems in NanoHUB statistical database. Developed code and re-created 0.75B record database from original log data.
- Developed machine learning categorization technique for identification of downloads that are being used in classrooms based on user behavior.

#### ***Director of Systems Engineering, IT Systems and Operations, 2005-2013***

Led a team of 15, including two managers, responsible for design, deployment and operation of central visualization facility and high performance computing clusters supporting Purdue, national and international research customers.

- Successful delivery of high performance computing has led to increased research funding. In 2010, research grant awards involving HPC accounted for 39% of total awards at Purdue or \$165M, up from 25% and \$80.7M in 2009.
- Grew staff to 15 FTE, developed and promoted senior staff to management positions, recruited and hired promising student workers. Developed career paths for staff members, including working towards advanced degrees, and aiding them in moving into positions in other groups where they could excel.
- Developed in house software to analyze, monitor and visualize system usage data by CMS tier 2 site using Bash, and Python. Analysis secured customer continued funding.

### ***Technical Architect, Envision Center for Data Perceptualization, 2002-2005***

Led systems and Audio-Visual team from design through deployment and onto initial years of operation for new visualization facility, employing state-of-the-art virtual reality, CAVE, display wall and telecommunications technologies to understand and analyze complex scientific data.

- Part of team that developed software for a remote, collaborative visualization toolkit, AGJuggler using C language. Took part in presentation with live remote site demo at 2005 IEEE Supercomputing Conference.
- Directed software development and demonstration of streaming 4K video demonstration as part of the Bandwidth Challenge at 2006 IEEE Supercomputing conference.
- Collaborated with visual artists and dance faculty for various efforts including visualization of sculptures and architectural designs. Coordinated Purdue technical staff for motion captured dance and visuals as part of “Art on the Grid”, a technically complex, remote telematics performance encompassing several sites across North America.
- Worked with Earth and Atmospheric Science faculty to adapt seismic data modeling software to CAVE environment.

### ***Network and Systems Manager, Markey Center for Structural Biology, 1991-2002***

Technical lead providing software, hardware and data management support for multi-disciplinary biological research group comprising 10 faculty and their laboratories. Supervised systems administrator and student assistants.

### ***Senior Software Support Specialist, Engineering Computer Network, 1985-1991***

### ***Software Support Specialist, Purdue University Computing Center, 1984-1985***

## **Education**

**MBA**, Krannert School of Management, Purdue University

**AB, Psychology**, Princeton University

- Undergraduate thesis on advanced skill acquisition. Included experimental design, software development of data acquisition system and statistical analysis.

## **Publications**

C. Freeland, D. McKay, *The Complete Systems Administrator*, Thomson / Delmar Learning 2002

C. Freeland, D. McKay, K. Parkinson, *Solaris for Managers and Administrators, 3<sup>rd</sup> Edition*, Thomson / Delmar Learning 2000

## **Affiliations**

Association for Computing Machinery

USENIX

IEEE