

## Sean McIlwain

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### EDUCATION

#### University of Wisconsin - Madison, WI

2003-Present

- Ph. D. Computer Sciences, Expected Summer 2008

#### University of Wisconsin – Madison, WI

2001-2003

- M. S. Computer Sciences, May 2003

#### Montana State University – Bozeman, MT

1995-2000

- B. S. Chemistry, May 2000
- 2<sup>nd</sup> major in Computer Science

### EXPERIENCE

#### Department of Biostatistics and Medical Informatics, University of Wisconsin – Madison, WI

*Research Assistant*

Sept. 2005 – Present

- Developed algorithms for annotating mass spectra with metabolically labeled samples
- Advisor: David Page, PhD.

#### Scooter Software, Madison, WI

Aug. 2005 – Sept. 2007

Software Developer

- Assisted with development of main software product using Delphi and Kylix
- Supervisor: Tim Thousand, Owner

#### Department of Biostatistics and Medical Informatics, University of Wisconsin – Madison, WI

*CIBM Pre-doctoral Training Fellow*

Aug. 2002 – Aug. 2005

- Wrote diagnostic classification algorithms using mass spectra
- Advisor: David Page, PhD.
- Minor Advisor: Judd Aiken, Ph. D. Department of Animal Health and Biomedical Sciences

#### Department of Biostatistics and Medical Informatics, University of Wisconsin – Madison, WI

*Research Assistant*

Sept. 2001 – July 2002

- Assisted with Inductive Logic Programming (ILP) for pharmacophore discovery
- Responsible for conformer generation for specific molecule compounds
- Advisor: David Page, PhD.

#### Epier.com, Spokane, WI

*Web Developer*

May 2001 – Aug. 2001

- Web page maintenance using ASP and HTML
- Developed utility programs in Visual Basic
- Supervisor: James Kim, CEO

#### Magnetic North, Inc. (Previously Technical Resource Group, Inc.), Spokane, WI

*Software Developer*

Sept. 2000 – Apr. 2001

- Received Training in Java, Java Servlets, WML, XML, PHP, and HTML
- Experience with the use of Apache Webserver, MySQL, PostgreSQL, and Linux
- Helped with administration of Intranet and setup of Cisco DSL router
- Worked on a project involving management of Point of Sale systems
- Supervisor: Scott Price, CEO

## **Departments of Chemistry and Microbiology, Montana State University, MT**

*Laboratory Assistant*

*May 2000 – May 2002*

- Performed macro-molecular dynamics using Charmm
- Learned to use Gaussian98 for calculating intra and inter molecular energies
- Supervisor: Al Jesaitis, PhD. Microbiology

## **Departments of Chemistry and Microbiology, Montana State University, MT**

*Laboratory Assistant*

*Mar. 1997 – May 2000*

- Performed cell culture, peptide synthesis, and trans-membrane protein isolation
- Operated Electron Paramagnetic Resonance (EPR) machines and UV-VIS spectrometers
- Wrote computer interface for EPR machines using LABVIEW
- Supervisors: David Singel, PhD. Chemistry and John Mills, PhD. Microbiology

## **PUBLICATIONS**

- S. McIlwain, D. Page, E. Huttlin, M. Sussman, "Matching Isotopic Distributions from Metabolically Labeled Samples", Bioinformatics, Accepted for publication in Bioinformatics (ISMB Accept Rate 15%), 2008
- J. Schmidt, S. McIlwain, D. Page, A. E. Christie, L. Li, "Combining MALDI-FTMS and Bioinformatics for Rapid Peptidomic Comparisons", J Proteome Res., Jan. 19 2008
- S. McIlwain, D. Page, E. Huttlin, M. Sussman, "Using Dynamic Programming to Create Isotopic Distribution Maps from Mass Spectra", Bioinformatics (ISMB Accept Rate 15%), 23(13), i328-i336, 2007
- S. McIlwain, B. Miller, "A Tool for Converting Linux Device Drivers into Solaris Compatible Binaries", Software: Practice and Experience, 36, 689-710, 2006
- D. A. Schwartz, E. D. Walter, S. J. McIlwain, V. N. Krymov, D. J. Singel, "High-Frequency (94.9 GHz) EPR Spectroscopy of a Spin 3/2 Center in a Neutron-Irradiated Sapphire Single Crystal", Appl. Magn. Reson. 16, 223-236, 1999

## **POSTER ABSTRACTS**

- L. Li, X. Wei, A. Herbst, S. McIlwain, J. Schmidt, R. Cunningham, D. Page, J. Aiken, "Combining MALDI FTMS, Comparative Glycoproteomics, and Bioinformatics for the Discovery of Biomarkers in Prion Disease", 56<sup>th</sup> ASMS Conference on Mass Spectrometry, Denver, CO, June 2008
- S. McIlwain, A. Herbst, J. Schmidt, D. Page, L. Li, J. Aiken, "Diagnosing Prion Disease through Proteomic Profiles", 13th International Conference on Intelligent Systems for Molecular Biology, Detroit, MI, June 2005
- S. McIlwain, D. Page, A. Spatola, D. Vogel, S. Blondelle, "Mining Three-dimensional Chemistry Structure Data", in the 10th International Conference on Intelligent Systems for Molecular Biology, Edmonton, CANADA, August 2002

## **COMPUTER SKILLS**

### **Operating Systems**

- Windows 95, 98, 2000, NT, and XP
- Solaris and Linux
- Familiar with Macintosh

### **Applications**

- Word processing with Microsoft Word, OpenOffice, Adobe FrameMaker, and Latex
- Spreadsheets with Microsoft Excel
- Internet research with Mozilla Firefox and Microsoft Internet Explorer
- Web Administration with Apache and IIS
- Molecular modeling with Charmm and Gaussian98

**Languages**

- Java
- Delphi and Kylix
- C and C++
- Inductive Logic Programming using Yap and Aleph
- Microsoft Excel Macros
- LABVIEW 5.0 programming and GPIB communications
- Web Technologies (HTML, XML, WML, PHP, Java Servlets, and ASP)
- Visual Studio (C++, VB6)
- SQL (MS SQL Server, MySQL, and PostGreSQL)
- Familiar with Fortran, Pascal, and Lisp
- Familiar with ADA
- Some experience with Machine and Assembly Language (Intel Ix86)
- Some statistical programming with SAS and R

**APIs**

- Weka Machine Learning Suite
- Qt 3

**ADWARDS**

- Computational Informatics in Biology and Medicine Training Fellowship (NLM 5T15LM007359), U of W, 2002
- Outstanding Graduating Senior - Chemistry, MSU 2000
- Departmental Honors - Chemistry, MSU 2000
- Gordon Pagenkopf Research Award, MSU, 2000
- Undergraduate Scholars Program Scholarship, MSU 1999
- E.J. Corey Scholarship, MSU, 1999
- Dean's List, MSU, Fall 1998 - Fall 1999
- Geer, Howald, Callis Research Scholarship, MSU, 1998
- O.E. Sheppard Scholarship, MSU, 1996

## REFERENCES

Dr. David Page  
*Associate Professor*  
Department of Biostatistics and Medical Informatics and Department of Computer Sciences  
University of Wisconsin – Madison  
Email: page@biostat.wisc.edu

Dr. Jude Shavlik  
*Professor*  
Department of Computer Sciences and Department of Biostatistics and Medical Informatics  
University of Wisconsin – Madison  
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Dr. Mark Craven  
*Associate Professor*  
Department of Biostatistics and Medical Informatics and Department of Computer Sciences  
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Dr. Lingjun Li  
*Assistant Professor*  
School of Pharmacy  
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Dr. Judd Aiken  
*Professor*  
Animal Health and Biomedical Sciences and School of Veterinary Medicine  
University of Wisconsin – Madison  
Email: aiken@svm.vetmed.wisc.edu

Dr. Mike Sussman  
*Professor*  
Department of Biochemistry  
University of Wisconsin – Madison  
Email: msussman@wisc.edu