

Howard Swerdfeger

Apt 1008, 195 clearview Ave
Ottawa, Ontario
K1Z 6S1
(613) 792-3508
HMS@howard.swerdfeger.com

Skills

Simulation and modeling experience in a wide variety of domains

- Protein and prion folding
- Hydro electric system optimization
- Linear matrix optimization
- multi dimensional planar interpolation (Krigging, Spline, inverse distance, etc..)
- Wave guide modeling
- Chemical fate modeling
- Chemical risk distribution analysis
- Chemical Dispersion Modeling
- Monte Carlo, Metropolis, Event driven simulation
- Stochastic simulation and analysis

Geographic Information System (GIS)

- Maintaining (programming) GIS software intended for scientific and engineering use
- ESRI (ArcGIS, spatial Analyst, 3D analyst)
- Maintained GIS database for use in scientific analysis
- Experience working with various projections (UTM, NAD, WGS, etc...)
- Spatial Joins

Database and Data Management

- MS SQL Server, My SQL, MS Access
- Experience working with geo-spatial Databases
- Maintaining complex database dependencies
- Set up a maintainable, usable, and intuitive data model
- SQL, ADO, RDO, DAO, JDBC

Computer Programming Experience with multiple languages, API's and platforms

- C, C++ And C++/CLI
- Visual Basic, VBA and VBA.Net
- Java (JDBC, JNI)
- Perl (web development)
- Windows, .Net, GNU/Linux (BASH, X-Windows)
- OpenGL, ActiveX, ADO, DAO, JDBC
- MATLAB, Maple, Excel
- Visual Studio (5, 6, .NET), Eclipse 3, KDevelop 2, 3

Documentation

- Experience in process documentation
- Experience writing separate documentation for a variate of audiences including maintainers, users, general public and upper management
- Frame Maker, HTML, XHTML, Word

Employment

Physical Scientist (GIS and Database specialist)

December 2007

Physical Scientist (GIS and Database specialist)

Existing Substances Division, Environment Canada

December 2007

November 2008

- Redesigned data model and data process used to track assist chemical risk assessment process
- Development of policy, for data management from various overlapping sources
- Data extraction, formatting
- Designed and implemented C++/CLI based GUI for Chemical Dispersion Model
- Development of VBA tool designed to analyze chemical release
- Worked extensively with GIS data in many forms Excel, text, Access, SHP, GRD
- Extensive GIS work (ESRI) Identifying Liquid Waste disposal sites across the country
- Writing, terms of reference and technical documentation
- Creating documentation for end users and maintainers
- Numerical analysis, with VBA and Excel

Programmer / Analyst

Canadian Hydraulics Centre, National Research Council

March 2005

September 2007

- Maintained GIS software intended for scientific and engineering use
- Daily use of MS Visual C++
- Design and implement MFC based GUI components
- Java software development, direct linking of Java's JNI with FORTRAN model.
- Worked updating and porting, legacy FORTRAN projects
- Gained familiarity with OpenGL libraries
- Maintained chemical dispersion model
- Implemented report tool, using XHTML templates
- Implemented general purpose interpolation algorithm including Krigging, Spline, Inverse Distance
- Documentation in Frame maker
- Assisted in writing update and final deliverable reports for clients
- Working with Clients to determine new version specifications

Technical Support

Convergys

September 2003

March 2005

- Troubleshooting of Windows (9x, NT4, 2k, XP) and Mac OS (9, X) based PCs
- TCP/IP stack repair
- USB drive installation
- Firewall and Antivirus setup and configuration
- Mail Client (MS Exchange, MS Outlook, Mac Mail) setup and troubleshooting
- received awards for perfect internal and external quality audits

Programmer / Analyst

Powel Group

October 2001

May 2003

- Analysis and modeling of hydrological systems
- Linear optimization programming
- Verification of hydrological model accuracy
- Object oriented development and pattern use
- Extensive Visual Basic and VBA programming
- Database programming: ADO, MS Access, MS SQL-Server, RDO, SQL
- Created ActiveX control and dll libraries
- Used the Win32 API Library
- Created specifications based on analysis of customer requirements
- GUI design and creation
- Customer support and training
- Hardware, software and network setup/support
- Researched feasibility of porting software to VB.net, and C#

Numerical Researcher

Laser Science and Technology Group, University of Waterloo

May 2001

August 2001

- Created Finite Element Analysis software for ridged wave-guides
- Researched wave guide propagation and diode laser theory
- Gained MatLab, Windows and Linux experience
- Worked independently with minimal supervision

Simulation Research Assistant

Condensed Matter and Biophysics Research Group, University of Waterloo

May 2000

August 2000

- Created new application designed to reproduce results of another systems
- Extensive use of Monte Carlo and Metropolis simulation techniques
- Developed and programmed protein and prion simulation experiment
- C/C++ programming experience in a UNIX environment
- Performed statistical analysis of generated data
- Ported code from Fortran to C++
- Experience with Condor software for job distribution across a network

Service Representative

Brampton Engineering

September 1999

January 2000

- Technical writing of equipment operations and procedures manual
- Modified engineering drawings for release to customers
- Tested and analyzed products created with new processes

Field Research Engineer

Ministry Of Transportation

September 1998

April 1999

- Performed field data collection and analysis
- Developed Visual Basic macros designed to assist in data analysis
- Beta testing of in-house software package
- Performed structural, life cycle, user delay and cost analysis
- Wrote several reports summarizing research
- Answered phones and inquiries from the public

Software Developer
Case International Harvester

January 1998
April 1998

- Object oriented software development
- GUI design and database programming
- Developed algorithm for space allocation and weight distribution
- Created Windows help files

Education

Bachelor of Science in Honours Physics
University Of Waterloo

August 2001

- Senior research project: Protein and Prion Structural Dynamics Simulation
- Teachers Assistant for Computational Physics Course in C
- President of University of Waterloo Undergraduate Physics Society
- Writer for campus newsletter

Additional Experience

Personal Website Development
swerdfeger.com

January 2001
Present

- LAMP (Linux Apache, MySQL, PHP, Perl) System Administration
- Perl soap scripting ([sample program](#))
- PHP web scripting
- My-SQL database administration
- Academic Java and Eclipse experience
- Volunteer tester of Mozilla XSLT engine
- GNU/Linux (BASH, X-Windows)