

**Joel B. Mohler**

December 2011

Address: 2122 Mixsell Ave; Bethlehem, PA 18015; 484-809-5557

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**Career Summary:** Senior software architect with eight years experience including database design, ORM & UI/UX technical direction, business need analysis, and scientific software contributions. Hallmarks of my work include robust simple code, foresight of problematic and incomplete business requirements, and appropriate object model abstractions. Respected authority on all aspects of the software in my care. Demonstrated cooperation in building software, meeting high level business objectives with diverse stakeholders. While earning a PhD in mathematics, contributed to the Sage computer algebra system with multiple high performance arithmetic algorithms.

## **Qualifications**

- Strong written technical communication abilities.
- Proven ability to recognize software design trade-offs and make decisions accordingly.
- Extensive development experience in both Unix/Linux and Microsoft Windows.
- Teaching capability especially in a small group environment.

## **Software Development Experience**

### **Eagle Solutions, Software Architect, Gap, PA**

**June 2008-present**

Recognized business needs and directed software solutions with increasing responsibility

Eliminated entire families of software defects by creating a broad test suite which was adopted and extended by internal developers.

Replaced internal use of CVS with Mercurial enabling more flexible software release strategy in keeping with agile software development.

Organized internal testing & build tools reducing the amount of automation code by half or more while exposing more functionality in a unified way to support personnel.

### **QtAlchemy, Open source Python business object toolset**

**2010-present**

Primary author of QtAlchemy which binds SQLAlchemy mapped objects to PyQt graphical interfaces

Documentation and use-cases available at <http://qtalchemy.org>

### **Sage Computer Algebra System, Open Source**

**2006-2008**

Designed and tuned code which was likely the world's fastest implementation enumerating the digits of very large integers.

Collaborated with David Harvey, Craig Citro and others to rewrite the interface to the high-performance NTL library.

### **SCons Build Tool, Open Source**

**2005-2006**

Collaborated with other independent developers extending the TeX/Latex builder

### **Eagle Solutions/Esh Computer Center, Software Developer, Gap, PA**

**1996-2003**

Envisioned and implemented deeply integrated JavaScript language bindings to the C++ core database abstraction layer.

Designed and implemented inventory sales prediction tool. This tool yielded significant reductions to necessary inventory stock levels for our business client.

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## Technology Skill Set

- C/C++
- Python, Pyrex/Cython, Sage, SCons, SQLAlchemy
- Qt, PyQt4, PySide
- SQL & Database schema design
- Mercurial, Subversion
- MS Visual Studio
- Windows .NET base class library
- Bash & GNU/Linux user space

## Education

**Lehigh University, Ph.D. Mathematics** **May 2009**

Dissertation: "Residues of Weyl Group Multiple Dirichlet Series" directed by Gautam Chinta

Lehigh University, M.S. Mathematics -- May 2005

**Millersville University, B.S. Mathematics Magna Cum Laude** **December 2002**

Minor: Computer Science

University and Departmental Honors

## Other Experience

**Lehigh Valley Christian High School, Board Treasurer** **Aug 2011-present**

Guided staff on accounting processes and reported financial conditions to the rest of the board.

**Lehigh University, Teaching Fellow, Bethlehem, PA** **2003-2008**

Taught several freshmen and sophomore level mathematics courses

## Academic Mathematics

- Sums of L-functions over Rational Function Fields (with Gautam Chinta). Acta Arithmetica. 144 (2010).
- "Residues of Weyl Group Multiple Dirichlet Series" - Multiple Dirichlet Series Conference IV at Stanford University -- June 2009
- "Evaluating a Multiple Dirichlet Series over a Function Field" - Multiple Dirichlet Series Conference II at Stanford University -- July 2006
- Fully funded for numerous mathematical conferences and Sage workshops.
- Minimal Paths on Some Simple Surfaces with Singularities (with Ron Umble). Pi Mu Epsilon Journal, 12(8), 2008.
- May 2002 "Class of 1866 Award" from Millersville University mathematics department.

**Memberships:** American Mathematical Society

**References:** Available upon request