# Timothy J. Schumacher, Ph.D.

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## Work Experience

- **Qualstar Corporation** — Boulder, CO
  *Software Engineer* — *May 2006-Present*
  - Built and maintained several daemon processes to manage the XLS Enterprise Tape Library.
  - Built and test against several versions of GCC and port code to different versions of linux.
  - Wrote several C/C++ shared libraries and JNI interfaces to access them from Java applications.
  - Designed a C++ application with an embedded JVM to access Java functionality from a C++ program.
  - Implemented the Automation/Drive Interface (ADI) between IBM drives and tape libraries.
  - Implemented a SCSI protocol endpoint in a tape library.
  - Maintained a build system, wrote several shell scripts to automate deployment of software packages.
- **University of Colorado at Denver** — Denver, CO
  *Adjunct Faculty* — *Fall 2011*
  - Taught Introduction to Statistics. (1 Section)
- **Colorado Mountain College** — Dillon, CO
  *Adjunct Faculty* — *2009 - 2011*
  - Survey of Calculus Instructor. (3 Sections)
- **University of Colorado** — Boulder, CO
  *Graduate Instructor* — *August 2001 - May 2008*
  - Taught several courses, including Calculus I,II and III.
  - Maintained course websites and wrote java applets to illustrate mathematical concepts to students.
  - Held regular office hours, staffed a walk in help lab, and wrote/proctored/graded exams.
- **University of Colorado** — Boulder, CO
  *Research Assistant* — *Summer 2000*
  - Developed code in C++ to solve partial differential equations using the Finite Element Method.
  - Wrote visualization tools using OpenGL.
  - Implemented a Linear Algebra library in C++ to solve various linear systems.
  - Set up a cluster with linux, used MPI to implement parallel processing code.

## Education

- **University of Colorado** — Boulder, CO
  *Ph.D., Mathematics* — *2003-2008*
  - Emphasis on analysis, non-linear PDE's, and stochastic processes.
  - Thesis topic was removable singularities for the equation $\Delta u = u^{\alpha}$.
- **University of Colorado** — Boulder, CO
  *M.A., Mathematics* — *2001-2003*
  - Focus was on Analysis and function spaces, particularly Sobolev Spaces.
- **University of Colorado** — Boulder, CO
  *B.A., Mathematics* — *1998-2001*
  - Graduated with honors with a 3.89 cumulative GPA. Member of $\Phi BK$ Academic Honor Society.

## Skills

**Computer Languages:** Java, Servlets/Struts, JSP, Javascript, Scala, Node.js, C/C++, LaTeX, Expect, Bash.

**Operating Systems:** Linux/UNIX, Posix, Windows 95/98/NT/2000/XP.

**Applications:** Mathematica, MS Visual Source Safe, git, vi/vim, Visual Slick Edit, Netbeans, Eclipse.

**Interests:** Skiing, rock climbing, hiking, mountain biking, playing banjo.

## Talks/Workshops

- **The Trace Problem and Fractional Order Differentiation** Fall 2007
  *Boulder, CO*
  - Discuss what happens when one takes elements of Sobolev Spaces and restricts them to lower dimensional subsets.
- **HTML Workshop** Fall 2006
  *Boulder, CO*
  - Workshop for first year graduate students on how to create course web pages on the department server. Brief introduction to working in a Unix environment.
- **C++/Java Workshop** Fall 2006
  *Boulder, CO*
  - Gave an introduction to using the C/C++/Java tools available to graduate students in the Department of Mathematics.
- **Distributions and the Direct Delta Function** Fall 2004
  *Boulder, CO*
  - It is often stated that "the direct delta function isn't a function"... So what exactly is it? This talk gave an overview of distribution theory and weak derivatives.
- **Sobolev Spaces, Orlicz Spaces and Embedding Theorems** Spring 2003
  *Boulder, CO* *(M.A. Presentation)*
  - Examine the so-called critical case $mp = n$ for target spaces to embed the sobolev space $W_{m,p}(\mathbb{R}^n)$. Show how one can not embed into $L^\infty$, but a suitable alternative can be found in the Orlicz Spaces.
- **Approximation in Hilbert Spaces, II** Fall 2002
  *Boulder, CO*
  - Part two of a two part talk about using least squares techniques in Hilbert Spaces. Show how one can obtain uniform estimates for approximations of functions using Sobolev norms in the $W^{k,2}$ spaces.
- **Approximation in Hilbert Spaces, I** Fall 2002
  *Boulder, CO*
  - Part one of a two part talk about using least squares techniques in Hilbert Spaces. Introduce least squares, derive the error minimizing property of least squares approximations.
- **The Brower Fixed Point Theorem** Summer 2000
  *Buffalo, NY*
  - Presented an elementary proof of the Brower Fixed Point Theorem.