

Silviana Amethyst, PhD

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silviana.org

PROFILE SUMMARY

- Programming proficiency in a spectrum of languages and libraries, focusing on command-line scientific software in C++, Python, and Matlab
- Expert in numerically solving polynomial systems in science and engineering.
- Teacher of Python, C++, and Git for Data Science and Scientific Computing.
- Strong leader and teacher for team-oriented collaborative research projects.
- Independent problem solver, working effectively with limited supervision.
- Clear written and oral communication and presentation skills for explaining complex processes, disseminating scientific results, and producing documentation. > 20 papers.

EDUCATION

Doctor of Philosophy, Colorado State University Applied Mathematics	2009-2012
Master of Science, Colorado State University Applied Mathematics	2006-2009
Bachelor of Arts, Colorado State University Major in Liberal Arts; Minors in History, Mathematics	2000-2004

TECHNICAL SKILLS

- *Programming Languages* - C++ (10 years), Matlab (13 yrs), Python (6 yrs), R (2 yrs)
- *Libraries and tools* -
 - Core Computational Libraries (Boost.Spirit, Boost.Multiprecision, Boost.Python, Boost.Log, GMP, MPFR, Eigen)
 - Templates, typetraits-driven programming, CRTP, smartpointers
 - Unit testing (Boost.UnitTest, Python UnitTest, pytest)
 - Data Science (pandas, numpy, Tweepy, R, ggformula)
 - Visualization (Matplotlib, Seaborn)
 - Parallel Programming (MPI, OpenMP, OpenACC)
 - API's (Twitter/Tweepy, Canvas)
 - Web crawling (BeautifulSoup)
- *Dev Tools* - Git and GitHub, Doxygen, Sphinx, Jenkins, Autotools, CMake, Git, PlantUML, Subversion, Apache Server

Academic Curriculum Vitae, lists of papers, presentations, etc. available upon request

WORK & RESEARCH EXPERIENCE (since earning PhD)

University of Wisconsin-Eau Claire, Department of Mathematics

Eau Claire, WI

Associate Professor

August 2017 – present

- Lead student research projects in computational mathematics (C++, Python), leading to presentations at national conferences.
- Produced amazing mathematical artwork, displayed in shows across the world.
- Taught Calculus I, Differential Geometry, Statistics, Programming for Data Science (R, Python, Git).
- Developed new Python course for Data Science.
- Maintained software (Python) for archiving the Covid-19 dashboard data.
- Ongoing maintenance of several C++/Python software packages.
- Participated in numerous department and university committees.
- Produced over 100 videos about Calculus for my YouTube channel.
- Winner, P.B Poorman Award,
- Winner, Kaarlgard Award for Faculty Excellence.

Brown University, ICERM

Providence, RI

Visiting Scholar

Fall 2018, Fall 2019

- Participant for *Nonlinear Algebra* and *Illustrating Mathematics* semester programs.
- Led workshops on Python, OpenSCAD, Git.
- Hosted a Wikipedia Edit-a-thon

University of Notre Dame, Applied Computational Math & Stats

Notre Dame, IN

Postdoctoral Research Associate

August 2014 – July 2017

- Lead developer for C++ / Python library project, Bertini 2.
- Developed and implemented algorithms for numerical algebraic geometry for faster solving of larger polynomial systems.
- Supervised undergraduate research projects in scientific software development (C++).
- Taught Scientific Computing (C++), Advanced Scientific Computing (C++), and Mathematical Methods II.

North Carolina State University, Department of Mathematics

Raleigh, NC

Postdoctoral Research Associate

January 2014 – July 2014

- Parallelized surface decomposer Bertini_real (C++) for faster computational results.
- Turned output of decomposition software into 3d printable format.
- Taught Calculus, Scientific Computing for biology and finance majors.

Colorado State University, Mathematics

Fort Collins, CO

Postdoctoral Fellow

January 2013 – December 2013

- Designed, implemented Bertini_real (C++) for computing algebraic curves and surfaces.
- Organized sessions on Numerical Algebraic Conference at international conferences.
- Taught Calculus III for Scientists and Engineers.