Ryan Latture *Software Developer, Materials Scientist*

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Experience

University of California, Santa Barbara — Santa Barbara, California

Graduate Student Researcher *Aug '12 – present*

I design bio-inspired ballistic and blast resistant materials. Using C++ and Python, I create simulation software that is used to rapidly assess new structural concepts and probe the domain space likely to yield novel property combinations. Working with collaborators at the Army Research Lab, we fabricate structures using the latest additive manufacturing and 3D printing technologies.

SABRE Program Mentor *Jun '15 – Aug '15*

I led a a senior undergraduate in computer science through a project characterizing the elastic properties of complex truss structures using Python and C++. The Summer Applied Biotechnology Research Experience (SABRE) is an outreach program promoting involvement of under-represented minorities in science and technology.

Graduate Teaching Assistant *Apr '14 – Jun '14*

I was a teaching assistant for Materials 200C, Structure Evolution in Materials. Topics in this class studied the phenomena underlying microstructure evolution across relevant length and time scales.

University of Tennessee, Knoxville — Knoxville, Tennessee

Student Researcher *Dec '10 – May '12*

I designed and fabricated a testing apparatus used to characterize unique materials in low temperatures and high magnetic fields[1]. This research was a collaboration between the University of Tennessee and the Correlated Electron Materials Group at Oak Ridge National Lab (ORNL).

Teaching Assistant in Mathematics *Oct '09 – May '12*

I worked in the Math Tutorial Center assisting students enrolled in undergraduate mathematics courses. I taught concepts covered in calculus I-III, differential equations, linear algebra, and statistics.

Open source projects

Pallas solver: Global optimization library

- Implemented in C++
- Built on top of the Google Ceres project
- Used in several groups at UCSB for shape and topology optimization.

Tresta: Truss visualization software

- Implemented in C++ and Qt
- Used to produce publication quality images and videos (latture.github.io/truss-taxonomy-videos).

3D beam finite element code

- Implemented in C++ (uses Eigen as foundation)
- Efficient and highly optimized (≈10x faster than commercial finite element codes)
- Offers C++ library, command line application, or GUI (using Qt)
- Contracted by SRI International, later open sourced

Education

University of California, Santa Barbara — Santa Barbara, California

PhD Candidate in Materials *2012 – present*

GPA 3.89

University of Tennessee, Knoxville — Knoxville, Tennessee

BS in Materials Science & Engineering (honors) *2008 – 2012*

GPA 3.94 (*summa cum laude*)

Technical skills

Programming languages: C++, Python

Other specialties: Abaqus (finite element method), CMake, CUDA, Digital Image Correlation (DIC), Eigen, Git, Linux, OpenGL, OpenMP, Qt, SWIG