

I'm a software engineer with a passion for mathematics, visual understanding, and building production software systems. I love solving problems of all sorts. More details about my projects are available at [embeepea.me](http://embeepea.me).

## Skills & Interests

- 8 years experience in JavaScript, including framework engineering, Node.js, and library development
- Significant scientific, geospatial, and data science programming experience in Java, Python using NumPy, Pandas, GDAL, NetCDF
- Significant experience in functional programming (Clojure, ClojureScript)
- Strong understanding of machine learning algorithms and theory
- 25 years programming experience in Java, Python, Ruby, C, C++
- Expert in fast interactive computer graphics applications, both 2D and 3D; some WebGL experience
- Thorough command of the mathematics of computer graphics (linear algebra, computational geometry)
- Extensive experience leading small teams of 3-5 people in software development projects
- 15 years SQL experience, including spatial (PostGIS)
- Significant experience with unit testing and build automation (JUnit, Ant, Jasmine, Grunt, Make)
- 25 years Linux/Unix; scripting in Perl, Python, shell; DevOps with Vagrant, Puppet, Amazon AWS
- Significant experience in higher education and government research labs
- 5 years experience with mathematical computation systems (Mathematica, MATLAB, Octave)

## Employment History and Project Highlights

- 2015-present: Chief Technology Officer / Co-Founder, FernLeaf Interactive
  - Principal architect and lead developer for data analytics, visualization, and ETL systems
  - [Interactive Watershed Map](#) (JavaScript, Python, HTML5 Canvas)
- 2007-2015: Senior Research Scientist, National Environmental Modeling and Analysis Center (NEMAC), University of North Carolina Asheville - senior technical staff member, lead developer
  - Global Climate Dashboard - visualization dashboard for [climate.gov](http://climate.gov) (JavaScript, HTML5 Canvas)
  - [Multigraph](#) - library for interactive data plots in web pages (JavaScript, HTML5 Canvas)
  - [Forest Change Assessment Viewer](#) - forest health monitoring tool (JavaScript, Python)
- 2002-2007: Software Engineer, NOAA National Climatic Data Center, Asheville NC
  - Extract/Transform/Load system architecture and development (Perl)
  - Web application development for climate data visualizations, reports (Java)
- 2001-2003: Freelance Consultant
  - US Census Bureau TIGER/Line file driver for open source [GDAL](#) library (C++)
- 1998-2001: Chief Technology Officer / Co-Founder, Geometry Technologies, Inc
  - Principal architect and lead developer
  - WebEq - first commercial product to support MathML for math notation in web pages (Java, XML)
- 1991-1998: Research Associate, The Geometry Center, University of Minnesota
  - Senior technical staff member, lead developer
  - [Geomview](#) - interactive 3D scientific visualization package, now available in most Linux distributions (C, OpenGL)
- 1990-1991: Assistant Professor, Dept of Math and Computer Science, University of Richmond
  - Taught business mathematics, calculus, and linear algebra

## Education

- PhD in Mathematics, University of Maryland
- MS in Applied Mathematics, Rensselaer Polytechnic Institute
- BS in Mathematics, Magna Cum Laude, Davidson College