



THE FLORIDA STATE UNIVERSITY

Graduate Programs in
**COMPUTATIONAL
SCIENCE**



Offered by the

Department
of

**SCIENTIFIC
COMPUTING**

www.sc.fsu.edu

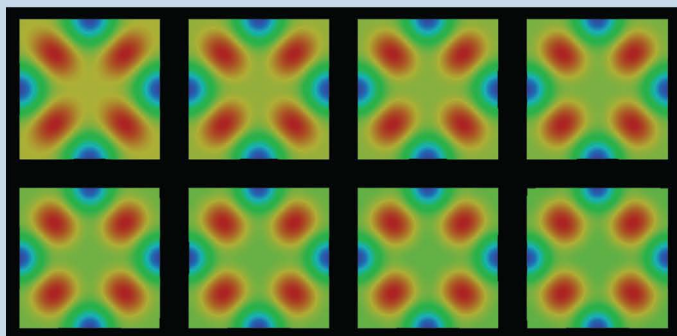
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What is Computational Science?

Scientific discovery and technical innovation have traditionally depended on experiments and theory. Recently, however, computations have become an equal, and in some settings, the preferred means for advancing science and engineering and have also become indispensable in certain aspects of the social sciences, arts, and humanities. Computational Science is about the development, implementation, and application of the new algorithmic, visualization, and software tools needed by scientists, engineers, and others to advance their disciplines through the use of computers. It is not surprising then that computational science pervades and influences the work done in all major industrial sectors, in private and government laboratories, and in academia.

The Department of Scientific Computing

The Department of Scientific Computing (DSC) is an interdisciplinary unit consisting of biologists, computer scientists, engineers, geneticists, geophysicists, materials scientists, hydrologists, mathematicians, and physicists, with an even broader spectrum of interests to be represented in the future. The DSC is ideally positioned to offer innovative graduate programs in computational science that impart a synergy between disciplines, thus providing extensive interdisciplinary, hands on training.



Facilities

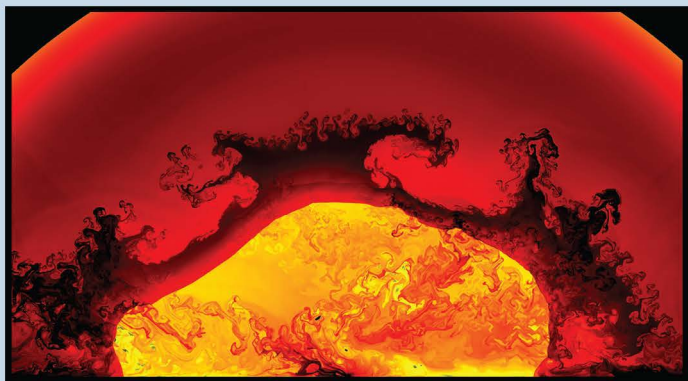
The DSC maintains a large and diverse computing infrastructure in support of research and education. Computing resources at DSC include large supercomputers, a number of clusters and computational servers, a laboratory for scientific visualization, a bioinformatics server and more. The DSC Visualization Laboratory provides high-powered visualization resources to the FSU community for research, data analysis of large data collections, and education. DSC also has a state of the art computer classroom as well as a seminar room which has a Cyviz stereo 3D VizWall with an 8 x 16 foot screen.

Master's Programs

The M.S. degree in computational science provides two main tracks for students. The first path is intended for students who are seeking a Ph.D. in computational science and also want to complete the M.S. requirements. The second path is a Professional Master's degree (PSM) which gives students the opportunity to acquire professional skills such as communication or management in addition to training in computational science. Hands-on experience through a summer internship allows the professional masters student to integrate material learned through coursework with problems of interest to industry and government agencies.

Doctoral Program

The DCS has implemented an innovative doctoral program in computational science. The program's goal is to train students to develop and analyze new computational algorithms which can be utilized in a variety of fields. Graduates should be able to successfully collaborate with scientists in other disciplines. Students have the option to follow the major track in computational science or specialize in areas such as atmospheric science, biochemistry, biological science, geological science, materials science or physics.



Coursework

The required core courses:

- Scientific Programming
- Applied Computational Science I
- Applied Computational Science II

Sample elective core courses:

- Scientific Visualization
- Verification and Validation in Computational Science
- High Performance Computing
- Data Mining
- Survey of Numerical PDEs
- Computational Finite element Methods
- Numerical Methods for Earth and Environmental Sciences
- Multiscale Modeling of Materials
- Computational Space Physics
- Molecular Dynamics
- Bioinformatics
- Computational Evolutionary Biology
- Applied Groundwater Modeling
- Geometric Morphometrics

Admissions Requirements

- Baccalaureate degree in computer science, mathematics, engineering or an applied science
- Knowledge of an object-oriented programming language such as C++, Fortran 90 or Java
- GRE general test scores
- Three letters of recommendation
- Official transcripts
- Two applications, one for FSU and one for DSC
FSU: admissions.fsu.edu
DSC: www.sc.fsu.edu
- International applicants should see website for additional requirements

Financial Support

Students accepted into the program will be considered for a Graduate Teaching Assistantship, or in some cases, a Graduate Research Assistantship. Both typically include a stipend and a tuition waiver. Teaching assistantships may consist of work in systems and network administration or assisting in a classroom setting.

Deadline

Students are encouraged to apply for the Fall Semester as early as possible. We will begin making offers in January and February for the following fall. However, domestic applications may be accepted until July 1 for the following fall.

DSC FACULTY

Peter Beerli

Associate Professor, Population Genetics

Gordon Erlebacher

Professor, Computational Intelligence

Max Gunzburger

Professor, Applied and Computational Mathematics

Chen Huang

Associate Professor, Materials Science

Alan Lemmon

Associate Professor, Evolutionary Biology

Anke Meyer-Baese

Associate Professor, Bioimaging and Data Mining

Janet Peterson

Professor, Computational Mathematics

Tomasz Plewa

Associate Professor, Computational Astrophysics

Bryan Quaife

Associate Professor, Computational Mathematics

Sachin Shanbhag

Assistant Professor, Materials Science

Dennis Slice

Associate Professor, Geometric Morphometrics

Xiaoqiang Wang

Assistant Professor, Mathematical Biology

Ming Ye

Professor, Computational Hydrology/Geology



Florida State University is a comprehensive, national graduate research university which has built a reputation as a strong center for research in the sciences. The university is located in Tallahassee, Florida which is the state capital. Tallahassee is situated in the Florida panhandle and is within a few hours' drive of beaches, national parks, and international airports.