



Computational Science Research Center & ACSESS

(Applied Computational Science and Engineering Student Support)

Dr. Jose Castillo, Director

Computational Science Research Center

San Diego State University

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Agenda



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- **About SDSU**
- **Computational Science Research Center (CSRC)**
- **Basic Skills set**
- **Curriculum Core Areas**
- **Multi-disciplinary/Interdisciplinary Training**
- **PhD Program in Numbers**
- **Summary**

About SDSU



- San Diego State University: (34K+ students), 1 of 23 campuses in the California State University system, founded in 1897
- Designated a Doctoral/Research Intensive University by the Carnegie Foundation
- Ranked # 1 nationwide among universities with less than 15 PhD programs
- 5,918 current masters and doctoral students

Computational Science Research Center (CSRC)



- Established in 1999 to address growing need for interdisciplinary and computational research.
- Interdisciplinary mechanism for the Computational Science & Engineering Graduate programs
- First Computational Science PhD program in California
- The CSRC represents a consortium of key faculty from Engineering and Science Colleges, with access to faculty throughout the campus

Our Team



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Dr. Jose Castillo
Director

Gordon Brown
Coordinator
Industry Projects

James Otto, Ph.D.
Coordinator
Computational Resources

Vacant
Coordinator
Scientific Visualization

Paul Paolini, Ph.D.
Dept. of Biology
Associate Director

Scientific Advisory Board:

Steve F. Ashby, Ph.D.

Lawrence Livermore National Laboratory

Gene Golub, Ph.D.

Stanford University (Honorary, Deceased)

Victor Pereyra, Ph.D.

Weidlinger Associates

Antonio Redondo, Ph.D.

Los Alamos National Laboratory

Horst Simon, Ph.D.

Lawrence Berkeley National Laboratory

Industry Advisory Board:

Victor Pereyra, Chair

Weidlinger Associates

John Newsam

fqubed, Inc.

Richard Greenblatt

Source Signal Imaging, Inc.

Antonio Redondo

Los Alamos National Laboratory

Andrew Cooksy, Ph.D.
Dept. of Chemistry
Associate Director

Eugene Olevsky, Ph.D.
College of Engineering
Associate Director

In addition to the many SDSU faculty and administrators contributing on various levels and capacities to the CSRC effort, we have **58** research affiliated faculty from industry, the national labs and other universities that support our goals.

Degree Programs



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- **Certificate**
- **Advanced Certificate in Computational Science**
- **Master of Science Program**
- **Master of Science with a Concentration in Professional Studies**
- **PhD in Computational Science**
- **PhD in Computational Science with a Concentration in Statistics**

Areas of Research



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- Fluid Dynamics
- Materials Science
- Biophysics
- Nonlinear Dynamics
- Environmental Science
- Scientific Databases & Data Mining
- Bioinformatics
- Computational Algebra
- Nuclear Physics
- Astrophysics
- Scientific Visualization
- Image Processing
- Structural Mechanics
- ... and more

The Numbers



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Ph.D.

of students: 37

Female: **9**

Male: **28**

graduated: 4

graduating this year: 4

Master of Science

of students: 14

Female: **4**

Male: **10**

graduated: 17

Professional Master of Science

of students: 5

Female: **1**

Male: **4**

Number of scientific publications by students: 74

Basic Skills Set



- Team Projects
- Interdisciplinary
- Scientific Computing
- Software
- Planning
- Communications

Curriculum Core Areas



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- Numerical Analysis
- Scientific Visualization
- High Performance Computing
- Scientific Data Base Techniques
- Statistics

Multi-disciplinary/ Interdisciplinary Training



- Discovery Teams
 - Science Driven
 - Faculty/Postdocs/PhD/MS/BS

Comp 670 Problems in Computational Science

Industry Interaction



- ACSESS
- Curriculum Forum
- Poster Session
- Summer Projects
- Consortium



- Applied Computational Science & Engineering Student Support
 - Collaboration between Industry and Academia
 - Benefits for Industry
 - Qualified & trained student employee
 - Specialized faculty mentor and advisors
 - Utilization of CSRC resources
 - Joint grant submissions
 - Benefits for CSRC & Students
 - Real-world experience
 - Education funding

Summary



SAN DIEGO STATE
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*We are training the next generation of Computational
Scientist of the 21st Century and we need your help
providing real world problems for our students*