

# *Linking SDSU Computational Science and Industry*



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# *Why? Mutually beneficial*

SDSU benefits	Industry benefits
<i>Expose students to “real-world” problems</i>	<i>Source of well-trained new employees</i>
<i>Additional source of support for students</i>	<i>Access to specialized academic firepower and resources</i>

# *SDSU computational science resources*

- Wide range of faculty from mathematics, science, and engineering spanning a variety of specialties (fluid dynamics, materials science, biophysics, bioinformatics, signal processing, data mining, computational and numerical expertise)
- Ph.D and M.S. students
- Computational resources (e.g. cluster, visualization)

# *How? Multi-tiered strategy*

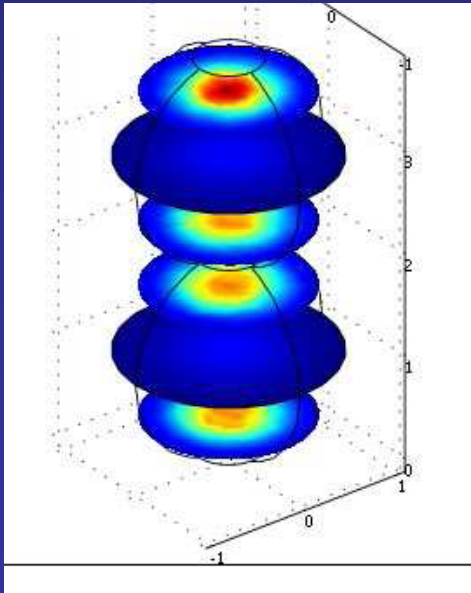
- Develop classes designed to streamline transition to industry (enhance teamwork, problem-solving, and communication skills)(no cost to industry)
- Provide access to faculty/student teams for specific problems (\$)
- Develop focused consortiums with multiple faculty and associated students (\$)

# *Example: class development*

- Computation Sciences 670
  - Intended to mimic industry environment
  - Small group of students address a specific problem and write report
  - Faculty act as consultants
  - Teamwork and flexibility
  - Objectives based in part on previous comments during ACSESS meetings

# Sample problems

- Signal analysis of brain waves
- Numerical modeling of spark plasma sintering
- Analysis of customers preferences (Netflix)
- Will accept problems from industry (no charge)



*Model of temperature distributions during spark plasma sintering – J. Talley*

# *Faculty/student teams*

- Provide support for a specific student(s) to work on a problem.
- Includes some allocation for faculty and computer resources.
- May form part of a student thesis
- One summer ~ \$10,000

# *Consortium*

- Research on a given problem supported by yearly fees (for example, seismic wave imaging).
- Gain access to latest results and codes.
- Yearly workshop to show results.
- Need group of companies.

# *Conclusions*

- Industry participation is essential for success.
- Beneficial to industry as well.
- Wide range of options with considerable flexibility.
- Contact me with questions or comments

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