



RICE

George R. Brown  
School of Engineering  
Computer Science



Departmental Overview  
Corporate Affiliates Annual Meeting  
October 15, 2009



Joe Warren  
Chair, Computer Science

## Strategic Research Areas

- Complex Systems (AI, Bioinformatics, Graphics, Robotics)
  - Goldman, Kavraki, McLurkin, Nakhleh, Subramanian, Warren
- Computer Systems and Networks
  - Cox, Jermaine, Johnson, Ng, Palem, Rixner, Wallach
- Parallel Software and Systems
  - Cooper, Mellor-Crummey, Palem, Rixner, Sarkar, Taha
- Verification, Security and Testing
  - Cartwright, Jermaine, Taha, Vardi, Wallach

## 2008-2009 Awards



- **Luay Nakhleh** received an NSF Career award.
- **Eugene Ng** received a Sloan Research Fellowship
- **Moshe Vardi** is elected an *IEEE Fellow*
  - “For contributions to the development of logic as a unifying framework for modeling computational systems.”
- **Vivek Sarkar** is elected an *ACM Fellow*
  - “For contributions to technologies for parallel computing.”
- **Krishna Palem** receives IEEE Wallace McDowell Award
  - “For his pioneering contributions to the growing field of embedded computing.”

## 2008-2009 Research funding

- **Chris Jermaine** - \$1.1 million from NSF & DOE in grants
  - Design and implementation of MCDB, allows storage and querying of stochastic models for erroneous, uncertain, or predictive data.
- **Lydia Kavraki** – co-PI on \$6.3 million DOD MURI grant
  - Developing new techniques for "opportunistic sensing" via sensor design, signal processing, communications and robotics
  - Directly impact the design of future ground and aerial surveillance systems
- **Vivek Sarkar** – co-Pi of \$10 million NSF Expeditions grant
  - Domain-specific computing project aims for better medical technology
  - Associate director of Center for Domain-Specific Computing



## Program-Aware Compilation Environment

- \$16 million grant funded by DARPA's Architecture Aware Compiler Environment Program
- *Goal:* Develop a new set of compiler-based tools that can improve the performance of virtually any application running on any microprocessor.
- One of three largest sponsored research projects in history of Rice.
- Principal investigators
  - Keith Cooper
  - John Mellor-Crummey
  - Krishna Palem
  - Vivek Sarkar
  - Linda Torczon

## Other news

- **James McLurkin** is the department's newest Assistant Professor. James works in complex systems and distributed robotics.
- Department's two new introductory CS classes (Comp 140 & Comp 160) have a combined enrollment of 80+ students.
- Department introduces a new class (Comp 322) on *Principles of Parallel Programming*, taught by Sarkar.
- Reintroduce Masters of Computational Science and Engineering (MCSE)
  - Requires set of courses from CS, CAAM and STAT; train Master's students in Computational Science with a focus on high performance computing

## Our Relationship with Industry

- *"Results of academic research are much more useful to industry today than they were 10 or 20 years ago. Universities are more receptive to and interested in collaborating with industry at this time. However, academic research should focus its efforts on the long-term, fundamental needs of the United States in science and engineering, with input on those needs from private industry, government and other sectors." Charles F. Larsen, Executive Director, Industrial Research Institute*

## Corporate Affiliates Program

- Goal: long-term relationships with industry partners
  - Academia: research partnerships, funding
  - Industry: research partnerships, new ideas, people
- Membership Benefits:
  - Access to students and student resumes
  - Invitation to annual meeting
  - Technical reports
  - Faculty visits
  - Affiliate visits