

## UC San Diego Expands Summer Program for Undergraduate Cyberinfrastructure Research in Asia and Pacific Rim

May 12, 2009

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For the second year in a row, the Pacific Rim Experiences for Undergraduates (PRIME) research abroad program at UC San Diego has expanded to include many more students, as well as more host countries and institutions. This summer, 33 undergraduates will have the unique experience of being full-time researchers in 13 labs at host institutions across Asia and the Pacific Rim.

PRIME provides undergraduates with the opportunity to spend their summer immersed in both scientific research and a new culture. Working with mentors at both the host institution and at UC San Diego, they do real research while living for nine weeks in countries located mostly around the Pacific Rim. This gives them experience with the increasingly collaborative and international scientific workplace of today.

At 33, the 2009 group is by far the largest that PRIME has ever had, having doubled each of the last two years. This brings the total number of students to over 100 since 2004. In its sixth year, PRIME has matured into a significant summer research opportunity for undergraduates at UC San Diego, becoming better known each year.

In fact, one of this year's applicants told the selection committee that she heard about the program at Admit Day and she accepted the UC San Diego offer, to a large degree, because of PRIME. The record numbers are due in part to previous students helping advertise the program.

"There has been amazing growth in the program this year, particularly in terms of student numbers. Our applicant pool nearly doubled in size," said Peter Arzberger, cofounder of PRIME. "The quality was so high and we wanted to accommodate as many as we could. We believe that an opportunity to live and work in an international site is important for our national and global society."

"We are not alone in our belief in the importance of providing students with experiential training in both the conduct of research and in the international global workplace," noted Gabriele Wienhausen, PRIME's principal investigator (PI) and cofounder. "University presidents, congressional panels and task forces as well as foundations, such as NSF, have highlighted this need. In addition, the current student generation understands the need and value of an international educational experience."

"Science and engineering students have a packed curriculum. If they wish to graduate in four years they often cannot do a semester or year abroad," explained Wienhausen. "Using the summer for a significant educational experience allows the students to fulfill one of their educational goals." Wienhausen is the associate dean of education for the UC San Diego division of Biological Sciences.

PRIME leverages the scientific community and cyberinfrastructure built by the Pacific Rim Application and Grid Middleware Assembly (PRAGMA) project. PRAGMA is a group of leading Pacific Rim research organizations collaborating on advancing grid technology applications. Arzberger is the chair of PRAGMA's Steering Committee. The majority of the PRIME host institutions are members of PRAGMA.

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"My summer through PRIME in Australia sparked a fire in me to pursue my graduate studies in a whole new way," an ecstatic David Allen Wong (PRIME 2008) recently wrote to his mentors and the PRIME organizers sharing the news of his acceptance into the Singapore-MIT Alliance graduate program. It is an 18-month dual masters program through the Massachusetts Institute of Technology (MIT) and the National University of Singapore and the Nanyang Technological University in Singapore.

"I fly out one week after graduation and spend a summer in Singapore. I come back for a semester at MIT, and then spend a whole year in Singapore where I'll be remoting in to MIT classes, working at a Singapore company, and writing my two theses," continued Wong. "Being in PRIME was what gave me the motivation and courage to attempt such a feat. Being a part of PRIME last summer was one of the best decisions I have made in my life. I am so excited to have such a unique graduate school experience waiting for me. Thank you so much." Wong is a UC San Diego chemical engineering major and he worked with David Abramson's group at Monash University.

More success stories: Last fall four PRIME alums were asked to reflect on their experiences in the program and how it helped to shape who and where they are today ([link to story below](#)).

In addition to the new sites and their contributions of resources (personnel and funds), this record growth was also made possible by adding eight new mentors at UC San Diego and an increased number of sources and contributions of funding.

PRIME is funded by the National Science Foundation (NSF) (including supplemental support from NSF's program for India), with additional support from the UC San Diego division of the California Institute for Telecommunications and Information Technology (Calit2), the National Biomedical Computation Resource (NBCR), the Gordon and Betty Moore Foundation, the bioengineering department of UCSD's Jacobs School of Engineering, additional partners and the host institutions, including additional support at USM, NiCT and Doshisha University.

#### **The PRIME 2009 participants:**

*Monash University, Melbourne* key host mentor: David Abramson **Elisa Abate** (UCSD: Kim Baldrige), **Ramya Chitters** (UCSD: Anushka Michailova), **Nicholas Echols** (UCSD: Jürgen Schulze), **Scott Revelli** (UCSD: Roy Kerckhoffs), and **Adi Singer** (UCSD: Jürgen Schulze) will be working with *David Abramson*.

*Computer Network Information Center, Chinese Academy of Sciences (CNIC CAS), Beijing* key host mentor: Kai Nan **Michael Siy** and **Chelsea Wong** (UCSD: Wilfred Li for both) will be working with *Kai Nan*.

*University of Hyderabad, India* key host mentor: Arun Agarwal **Brian McMahon** (UCSD: Tony Fountain) will be working with *Arun Agarwal and Prof. Subbarao*. **Matthew Mui** and **Dee Chen** (UCSD: Jason Haga for both) will be working with *Arun Agarwal and Anand K. Kondapi*.

*Cybermedia Center, Osaka University, Osaka* key host mentor: Susumu Date **Allyson Clark** (UCSD: Jason Haga), **Sasha Koruga** (UCSD: Jürgen Schulze), **Christopher Lau** (UCSD: Jason Haga), **Anna Pham** (UCSD: Masahiko Hoshijima), **Cory Stevenson** (UCSD: Raj Singh), and **Wen-wai Yim** (UCSD: Jason Haga) will be working with *Susumu Date*.

*Doshisha University, Kyoto* key host mentor: Nozomu Inoue **Utsav Gupta** (UCSD: Robert Sah), **Andrew Sou** (UCSD: Koichi Masuda) and **Ling Xu** (UCSD: Koichi Masuda) will be working with *Nozomu Inoue*.

*National Institute for Information and Communications Technology (NICT), Kyoto* key host mentor: Shinji Shimojo **Isabelle Fanchiu** (UCSD: Maurizio Seracini) will be working with *Kaori Fukunaga and Shinji Shimojo*. **Jade Kwan** (UCSD: Jürgen Schulze) will be working with *Shinji Shimojo*.

#### *Malaysia*

*Universiti Sains Malaysia (USM), Penang* key host mentor: Habibah Wahab **Jessica Hsieh** and **Jessica Liu** (UCSD: Wilfred Li for both) will be working with *Habibah Wahab*.

#### *New Zealand*

*University of Auckland* key host mentor: Jason Ingham (Engineering) and Poul Nielson (Bioengineering) **Jefferson Hang** (UCSD: Lelli Van Den Einde) will be working with *Jason Ingham*. **Amir Shirkhani** (UCSD: Roy Kerckhoffs) will be working with *Poul Nielsen*.

*University of Waikato, Hamilton* key host mentor: David Hamilton **Jacqueline Chin** (UCSD: Jane Teranes) will be working with *David Hamilton*.

*National Center for High-performance Computing (NCHC), Hsinchu* key host mentor: Fang-Pang Lin

*National Museum of Marine Biology and Aquarium (NMMBA), Kenting* key host mentor: Tony Fan **Robert Chen** (UCSD: Ryan Kastner), **Tsung Han Lin** (UCSD: Doug Palmer), **Michael Nekrasov** (UCSD: Tony Fountain) and **Winnie Wen** (UCSD: Jennifer Smith) will be working with *Tony Fan and Fang-Pang Lin*.

*National Center for Research on Earthquake Engineering (NCREE), Taipei* key host mentor: Keh-Chyuan Tsai **Lori Jue** and **Sabina Piras** (UCSD: Lelli Van Den Einde for both) will be working with *Keh-Chyuan Tsai*.

*National Taiwan University (NTU), Taipei* key host mentor: Jung-Hsin Lin **Jennifer Choy** (UCSD: Wilfred Li) will be working with *Jung-Hsin Lin*.

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Packaging Certificate Files

- 1. Copy, paste, identify with names for each student's group activity.
- 2. Print 2 copies of each to your group.
- 3. Print 4 copies of each to your group.
- 4. Copy to a separate folder on the computer.
- 5. Copy to a folder on the computer.
- 6. Copy to a folder on the computer.
- 7. Copy to a folder on the computer.
- 8. Copy to a folder on the computer.
- 9. Copy to a folder on the computer.

