Davidson Fellow

Sunil Pai

$25,000 Scholarship Recipient

Personal Info
Age: 17
Houston, Texas

School, College and Career Plans
A recent graduate of The Kinkaid School in Houston, Sunil will attend Stanford University in the fall. He plans to study Biomedical Engineering and Mathematics in college while pursuing his science research interests.

Davidson Fellows Submission: Science
In his project, "A Novel, Inexpensive, Nanotechnology-Based Approach to Determine Quantum Energies of Superoxide," Sunil constructed an inexpensive, nanotechnology-based system to determine quantum energies of superoxide. By examining oxygen in the liquid phase instead of the gas phase, his potentiostat system can determine the quantum structure for the electron attachment reaction of oxygen to superoxide. The determination of oxygen's physical properties is essential to fully understanding the role oxygen and many free radicals have in cell processes. This experimentation method may establish other molecular properties that will offer new insights into biological and environmental processes.

Biography
Sunil credits his engineer father and medical physicist mother with inspiring his interest in science. At 14, Sunil attempted to build a glucose biosensor for diabetes testing, an endeavor that sparked Sunil's interest in scientific research and led him to the development of his Davidson Fellows project.

Sunil believes that solving the world's most challenging problems requires a broad knowledge base, and his through his research has gained familiarity with various fields of science including computer science, electronics, quantum mechanics, electrochemistry, biochemistry and nanotechnology.

In addition to science, Sunil played the violin for his high school orchestra and served as secretary of the orchestra organization. He was also involved in debate and cross country running in high school. In his free time, Sunil enjoys solving puzzles, playing computer games and reading science fiction novels.

Please see next page.

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(cont.)

- 2011 Davidson Fellow
- 2011 Intel Science Talent Search Finalist
- 2010 Siemens Competition Semifinalist (Math: Science: Technology)
- 2010 Intel International Science and Engineering Fair Finalist
- 2010 Science and Engineering Fair of Houston. Physical and Engineering Sciences Grand Award recipient
- 2010 Science and Engineering Fair of Houston, Senior Chemistry division First Place
- 2010 Science and Engineering Fair of Houston Science Writing Contest Third Place
- 2010 Kinkaid School Herder Fellowship recipient
- 2009 Science and Engineering Fair of Houston, Senior Chemistry division First Place
- 2009 Science and Engineering Fair of Houston Science Writing Contest Second Place
- 2009 Exxon-Mobil Texas Science and Engineering Fair@ San Antonio Senior Chemistry division Third Place
- 2009 Wentworth Scholar University of Houston and American Chemical Society, Greater Houston Chapter
- 2009 Kinkaid School Herder Fellowship recipient
- 2009 Siemens Competition (Math: Science: Technology) Regional Finalist

Community Activities

Sunil is Youth President of his local cultural community, and is a former President of his school's India Club, which he also founded. One of his favorite community service experiences was teaching Digital Electronics at a math and science camp for underprivileged high school students.