

Davidson Fellow
Anna Kornfeld Simpson
\$25,000 Scholarship Recipient



Personal Info

Age: 17
San Diego, California

School, College and Career Plans

Anna begins her freshman year at Princeton University this fall in the Engineering program, and is deciding on a major of Computer Science or Electrical Engineering. She looks forward to a career in computer science research and development, helping to create technologies that make the world a better and safer place.

Davidson Fellows Submission (Technology)

In her project, "*A Mobile Autonomous Chemical Detecting Robot*," Anna developed a chemical-detecting robot. She used porous silicon, a material that changes color in the presence of chemicals like alcohols or nerve gas, and simple, low-cost circuit elements to detect color change. The robotic microcomputer then "sees" the chemical instead of "smelling" it. Prototypes had a 100% response rate. Her work has applications in security and counterterrorism, monitoring industrial settings for toxins, and exploring locations too hazardous for humans.

Biography

Anna's interest in robotics and programming began in the fifth grade, when she joined her school's FIRST Lego League robotics team. Throughout middle school, she became especially interested in vision sensing, which led to two science fair projects. During her freshman year in high school, she met her mentor at UCSD and began working on her Davidson Fellows project in his laboratory.

One of Anna's main challenges for her project was finding time to research. Due to her schedule of AP and college classes, Youth Symphony, and extracurricular activities, she often ended up working on the robot during school holidays and winter break. She was fortunate to have the support of the laboratory's students, graduate students and postdoctoral students, who were always willing to help with the chemical procedures she was too young to do herself.

Anna enjoys reading, learning math, discussing history, philosophy, literature and ethics with her mother, and playing tennis with her father and sister. She played flute and piano in her school's various bands, was a leader of the Academic League Team and math team, and founded the robotics club and science fair club. Anna is a California Scholarship Federation Life Member and her goal is to learn something new every day.

Please see next page.



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cont.

- 2010 Davidson Fellow
- 2010 California State Science Fair, Student of the Year
- 2010 Kyoto Scholarship Winner
- 2010, 2009 Greater San Diego Science and Engineering Fair, Senior Sweepstakes Winner
- 2009 First high school student published on the National Science Foundation's LiveScience
- 2009 Research Science Institute, Distinguished Paper Award in Computer Science
- 2009 Research Science Institute Compendium Publication
- 2009 California State Science Fair Project of the Year
- 2009 ACLU Civil Liberties in Science and Technology First Place Award
- 2008 Center for Ethics in Science First Place, Ethics in Science Award

Community Activities

Anna serves on the Greater San Diego Science and Engineering Fair's Student Advisory Board, which helps coordinate the science fair and the ACLU Science Fair Judging Panel. In addition, she tutored fellow high school students through the Link Crew program.

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