



**Davidson Fellow Laureate
Tiffany Ko**

(\$50,000 Scholarship Recipient)



Personal Info

Tiffany Ko
Age: 16
Terre Haute, Indiana

School, College and Career Plans

A recent graduate from Terre Haute South Vigo High School, Tiffany has done research at Indiana State University with Dr. Elaina M. Tuttle and at the Rose-Hulman Institute of Technology with Dr. Jianjian Song. In the fall, she will attend Princeton University to major in engineering.

Davidson Fellows Submission (*Technology*)

In her project titled, "Designing a Capacitance-Based Security System Employing the MC33794 E-Field Sensor Chip," Tiffany designed a computerized security system based on electric field sensing, an emerging area of semiconductor technology. Tiffany built a prototype circuit board and programmed a novel capacitance-based computer system that is user-friendly and able to store collected data while providing an essentially foolproof security program superior to those customarily used today. Her technology may be used as a security system in homes, businesses and high security safes, as well as to monitor the whereabouts of people within a building without expensive surveillance equipment.

Biography

As a child, Tiffany began with a strong foundation in the math and sciences that made all her efforts possible. It gave her the means to pursue any area of research that sparked her curiosity. When she realized that her home security system had flaws, Tiffany's interest in security systems and her family's safety motivated her to make a better, superior security system. She not only designed the schematics, but also created the hardware, wrote and programmed the firmware, and did prototype testing.

In addition to this project, Tiffany has also done research in the fields of mathematics and evolutionary ecology. One mathematics project qualified her and two teammates as Siemens Westinghouse Regional Finalists in 2004. In addition, her evolutionary ecology project won first place in Zoology at the 2005 Intel International Science and Engineering Fair, an event with 1,400 participants from around the world.

Tiffany has a number of diverse interests, including playing both violin and piano and a love for drawing and designing. She also plays soccer competitively and is a first-degree black belt in the American Tae Kwon Do Association. In addition, she likes to participate in theater, whether to play in the musical pit or act on stage.

Please see next page.

The Davidson Institute for Talent Development

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(Cont.)

Honors/Awards

- 2005 Davidson Fellow Laureate
- 2005 Indiana State University, Best Undergraduate Biological Showcase
- 2005 Crane Naval Base Science Fair, Best of Show
- 2005 West Central Indiana Science and Engineering Fair, Best of Show
- 2005 Indiana Science and Engineering Fair, Best Biological Science Project
- 2005 Indiana State School Music Association competition, Gold at State Solo and Ensemble for violin
- 2005 Swope Art Museum exhibition, graphite on paper
- 2004 Advanced Placement Scholar with Distinction
- 2004 State Science Fair, First Place Engineering Project
- 2004 National Scholastic Female Chess Championships, Fourth Place
- 2003 Indiana Math League, First Place
- 2002 – 2003 Rose-Hulman Mathematics Competition Champion
- 2002 CO₂ Car Competition, Best of Show
- 2002 – 2004 USA Math Olympiad Finalist
- 1999 Discovery Channel® Young Scientist Challenge Finalist

Community Activities

During the summer of 2004, Tiffany volunteered five hours a day at the Indiana State University Daycare Center, performing all the duties of a regular caretaker.

For several years, Tiffany served the Terre Haute Youth Symphony Orchestra as assistant concertmaster. The orchestra played in several public places each year to entertain the community and bolster enthusiasm for orchestral music.

Tiffany also tutors many high school students and has served as a math instructor for MathCounts at the local middle school.

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