



**Davidson Fellow
Janie Gu**

\$10,000 Scholarship Recipient



Personal Info

Age: 16
Morganville, New Jersey

School, College and Career Plans

A rising senior at High Technology High School, Janie plans to pursue higher education at a prestigious institution and major in the fields of physics and engineering.

Davidson Fellows Submission (*Science*)

In her project, "*Toward Improving the Precision of an Atomic Magnetometer*," Janie researched noise reduction of atomic magnetometer systems, advanced devices that measure magnetic fields with extreme precision. To increase the signal-to-noise ratio, she tested the loss factors, measurements of magnetic noise produced, of various ferromagnetic materials for use in the magnetic shield around the system, improving the precision by more than 44 percent. Janie's work has applications in the military, medicine, information storage, mineral and oil detection, space exploration and fundamental physics experiments.

Biography

Janie, who just finished her junior year, has attended public school since second grade after skipping first. This summer, she is attending the New Jersey Governor's School of Sciences and has been invited to present her research in the Armed Forces Communications and Electronics Association (AFCEA) LandWarNet 2010 Conference.

Janie has been in special honors programs and accelerated courses since elementary school. She has taken several AP and college courses in architecture, engineering, computer integrated manufacturing, chemistry, calculus and Spanish. Janie's love for physics developed after a sophomore honors physics class. She applied and was accepted for a competitive physics internship at Princeton University through the NJ Liberty Science Center's Partners in Science program.

Additionally, Janie is an active member of the mathematics league, science league, and academic team at her school. She is an officer in the Technology Student Association and plays tennis for the Marlboro High School varsity team, which recently won fourth place in the Girls' State Conference. Outside of school, she enjoys photography, graphic design, singing and writing, as well as playing the piano.

Please see next page.



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cont.

Honors/Awards

- 2010 Davidson Fellow
- 2010 Invited to present at the International Armed Forces Communications and Electronics Association (AFCEA) LandWarNet Conference
- 2010 AFCEA National High School Science Fair Second Place Overall
- 2010 Intel International Science & Engineering Fair participant
- 2010 Yale Science and Engineering Association Award
- 2010 United States Army Award, First Place
- 2010 The Franklin Institute Physics Award
- 2010 NANO / BIO Interface Center Award
- 2010 Delaware Valley Science Fair, First Place in Physics and Third Overall
- 2010 Paul Saraduke Jr. Award for Outstanding Contribution to Physics
- 2010 AFCEA 18th Annual Science Fair First Place
- 2010 Monmouth Junior Science Symposium, one of top ten presenters
- 2010 Shore Mathematics League, Second Place Individual Award
- 2010 Advanced Placement Scholar with Honor
- 2010 International Technology Student Association Electronic Research and Experimentation Fourth Place
- 2009 Young Science Achievers Program Winner Second Place

Community Activities

Janie co-founded the program “Mentoring the Future,” which encourages students to conduct scientific research. Janie has been a math tutor, a counselor in summer science camps, and a tennis coach. She has volunteered over 1,000 hours for various community services and as a result, was inducted as a member of the National Honor Society. She has also volunteered at the Monmouth Vicinage of the Superior Court and Holmdel Library, and worked as a news correspondent for *NJ Chinese News Weekly*.

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