

Davidson Fellow

James Ting

\$25,000 Scholarship Recipient



Personal Info

Age: 17

Holmdel, New Jersey

School, College and Career Plans

A rising senior at High Technology High School, James hopes to attend Princeton or Harvard and major in physics or engineering with a minor in biology. He plans to pursue a career in bioinformatics through the development of quantum computation.

Davidson Fellows Submission (Science)

In his project, "*Imaging and Electronic Characterization of Bismuth Nanowires*," James synthesized bismuth nanowires which

demonstrate quantum confinement, the reduction of electrons to a one-dimensional axis. By using physical vapor deposition, he created lawns of bismuth nanowires as well as isolating single nanowires to add to silicon chips. James' research focuses on the creation of single electron transistors, which are useful in the new field of spintronics. The spins of these electrons could then be harnessed and used for information storage and act as the building blocks for quantum computers.

Biography

At a young age James received additional tutoring from his parents, and by middle school he was studying Algebra 1 on his own and testing out of the class. After middle school he was accepted to High Technology High School and took many Advanced Placement classes. Every weekend James attended seminar classes at Columbia University through the Science Honors Program, where he was introduced to neuroscience and nanotechnology.

James feels that he is a contributor to the world and therefore, has a responsibility to give all that he can to society and humanity and he believes quantum computing is where he should focus his efforts. In pursuing his Davidson Fellows project, he had to learn how to work with nanoscale materials, at times feeling that he was doing something intangible and unreal. His lab experiences taught him that things you can't see can be as real as anything else and currently shape the future in which society is moving. James also feels that the way to success is through determining a goal, persistence and adaptability.

Outside of the lab, James is president of his school's Technology Student Association which promotes education in engineering and the sciences. He also serves as the captain of his school's competitive math team. James is on the varsity cross country and track teams.

Please see next page.



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cont.

Honors/Awards

- 2010 Davidson Fellow
- 2010 National Advanced Placement Scholar
- 2010 United States Physics Olympiad Semifinalist
- 2010 United States Chemistry Olympiad Semifinalist
- 2010 United States Biology Olympiad Semifinalist
- 2010 Bausch + Lomb Honorary Science Award
- 2010 Governor's Scholar at New Jersey Governor's School of Engineering and Technology
- 2010 Armed Forces Communications and Electronics Association: Pennsylvania Chapter First Place
- 2010 Technology Student Association Engineering Design Category First Place
- 2010 Army Aviation Association of America First Place
- 2010 American Junior Academy of Science Fellow and New Jersey Delegate
- 2009 National Honor Society Member
- 2009 NYU-Polytechnic University Cyber Forensics Challenge Finalist
- 2009 National Latin Exam Gold Medal
- 2009 Advanced Placement Scholar with Honor
- 2007 Study of Exceptional Talent (SET) at Johns Hopkins University

Community Activities

James volunteers at the Meridian Riverview hospital, working at the Physical Rehabilitation and Food Nutrition departments. This experience has shown him the impact that such services provide and how meaningful it is for people to collaborate.

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