



**Davidson Fellow  
Fiona Wood**

(\$10,000 Scholarship Recipient)



**Personal Info**

Age: 17  
North Haven, Connecticut

**School, College and Career Plans**

A graduate of North Haven High School, Fiona is attending Harvard University this fall and will major in computer science. Also interested in Harvard's applied mathematics and neuroscience programs, she plans to work towards a Ph.D. in computer science, possibly focusing on studies in computational neuroscience and artificial intelligence. Ultimately, Fiona plans to be a research scientist.

**Davidson Fellows Submission** (*Science*)

In her project, "Biophysically Realistic Computational Models of Temporal Encoding in Cortex," Fiona explored the brain's ability to perceive and measure interval time using late-spiking (LS) neurons. She created the first biophysically realistic computational model of an LS neuron, and used it to construct neural networks that can accurately and realistically encode time. For all animals, an ability to perceive and measure time is essential for a wide variety of tasks. Fiona's work can lead to better understanding of brain diseases in which interval time encoding is impaired, such as Parkinson's, Huntington's and schizophrenia.

**Biography**

Fiona was enrolled in the creative learning program, Future Problem Solving, at her high school. While in high school, she took a multivariate calculus class and an honors physics class at Yale. In addition, she took a differential equations course and a data structures course at Southern Connecticut State University.

At the end of 10th grade, Fiona decided to look for research opportunities in computational neuroscience. She went to Yale University's website and found a lab whose research looked interesting and sent an email to the lab's director requesting an internship. Fiona was accepted and within a few months she had developed a computational neuroscience research project. She did additional research by reading relevant literature in scientific publications.

Fiona has been playing the violin since she was 4 years old, and attended the Juilliard School of Music's Pre-College program during middle school. During her sophomore year, she was concertmaster of the Connecticut All-State Orchestra. For the past four years, she has been studying with a Yale School of Music professor.

*Please see next page.*



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(Cont.)

**Honors/Awards**

- 2009 Davidson Fellow
- 2008 Intel International Science and Engineering Fair Second Place Grand Award
- 2009 Intel Science Talent Search Semifinalist
- 2009 National Merit Finalist and Scholarship Recipient
- 2009 Advanced Placement Scholar with Distinction
- 2009 Connecticut Science Fair, First Place Computer Science Award
- 2008 North Haven High School Rensselaer Medal
- 2008 - 2009 National Honor Society
- 2008 Connecticut Science Fair, First Place
- 2008 Connecticut Women's Hall of Fame *A New Century of Women in Science*
- 2008 Connecticut Technology Council Women of Innovation Finalist
- 2008 Gerber Scientific Medal of Excellence
- 2008 Meyerand Young Woman Scientist
- 2008 - 2009 Mu Alpha Theta Society, Award Recipient
- 2008 North Haven High School's Harvard Book Award
- 2007 General Electric AP Computer Science Competition, Second Place
- 2006 Future Problem Solving International, First Place

**Community Activities**

Fiona enjoys giving violin performances at local fundraisers, senior centers and nursing homes, as well as being concertmaster of the pit orchestra for her high school's musical productions. She served as a peer tutor at her high school for students in math, science and computer science.

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