



Davidson Fellow Laureate

Wenyi Cai

(\$50,000 Scholarship Recipient)



Personal Info

Wenyi Cai

Age: 17

Naperville, Illinois

School, College and Career Plans

Wenyi graduated second out of 683 students at Naperville Central High School. She will begin classes this fall at Harvard University in Cambridge, Massachusetts.

Davidson Fellows Submission (*Technology*)

For the past 20 to 30 years, automotive engineers have played a game of guess and check with the design of the gasoline engine, because the structure of the gasoline spray could not be accurately determined by conventional optical or laser methods. In her project, *Quantitative Analysis of Highly Transient Gasoline Sprays by Time-Resolved Synchrotron X-Radiography*, Wenyi used x-rays to determine the characteristics of the spray and revealed never-before-seen irregularities crucial to drastic fuel conservation and emission control. Her findings may have significant influence on gasoline direct-injection technology and the entire automobile industry.

Biography

A recent graduate of Naperville Central High School, Wenyi was an officer on the Northeast District Illinois Student Councils Executive Board, editor of the nationally-acclaimed school newspaper, captain of the badminton team, a mock attorney and judge in Youth & Government and a member of the Math Team who won individual and team awards at the conference, regional and state levels.

Wenyi's research on gasoline-fuel sprays placed her as a finalist in the Intel Science Talent Search and regional finalist in the Siemens Westinghouse Science & Technology Competition. Her work has been published at several international conferences and has recently been submitted to Nature magazine with Wenyi as its first author. In addition to her scientific interests, Wenyi has a passion for journalism, politics and law.

Please see next page.

The Davidson Institute for Talent Development

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(Cont.)

Honors/Awards

- 2002 Davidson Fellow Laureate (September)
- 2002 Columbia Press Association Gold Circle Award (May)
- 2002 National Merit Scholar (May)
- 2002 USA Today All-USA High School Academic, 2nd Team (May)
- 2002 Intel Science Talent Search, Finalist (March)
- 2002, 2001 Youth and Government State of Illinois 53rd Youth Legislation Judicial Program, First Place Attorney (March 2002) and Second Place Attorney (March 2001)
- 2001 Siemens Westinghouse Science & Technology Competition, Regional Finalist (November)
- 2001 Argonne National Laboratory Advance Photon Source 11th User Meeting, Graduate Student Poster Contest Winner (October)
- 2001 Illinois Association of Teachers of English Prose Writing, Winner (May)
- 2001 National Council of Teachers of English, "Outstanding Writer" Nomination (April)
- 2001 Quill and Scroll International Society for High School Journalism, "Gold Key" Winner (March)
- 2001, 2000 Siemens Award for Advanced Placement (December)
- 2000 NSPA/JEA National Convention for High School Journalism Write-off Competition, Superior Rating (November)

Community Activities

Wenyi is the founder and president of Children of the World, a service club that raises money for underprivileged children abroad. In 2002, Wenyi initiated a K-8 tutoring service in order to bring the club's roots back into the local community.

A gifted pianist, Wenyi has won several "Chicagoland" competitions.

She is also a member of the local badminton club where she works under former U.S. Olympic Coach Jian Liu, the only Level 4 badminton coach in the U.S.

Wenyi also volunteers as a team leader for the annual MS-Walk and at a local nursing home during the bi-weekly bingo games.

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