

Davidson Fellow**Damien Jiang**

\$25,000 Scholarship Recipient

**Personal Info**

Age: 17

Raleigh, North Carolina

School, College and Career Plans

A recent graduate of the North Carolina School of Science and Mathematics, Damien is attending the Massachusetts Institute of Technology this fall, where he plans to major in mathematics.

Davidson Fellows Submission (Mathematics)

In his project, "*On the Period Lengths of the Parallel Chip-Firing Game*," Damien studied the parallel chip-firing game (PCFG).

Though not a game, the PCFG is played on a graph, or network of nodes and edges, and is closely related to a variety of mathematical

models for complex phenomena such as earthquakes, avalanches and forest fires. By running computer simulations of randomized PCFGs, Damien studied their tendency to reach a cycle of repeating configurations, and mathematically proved a theorem about its behavior on a graph. Damien's work has broad applications in disaster preparedness.

Biography

Damien's love of mathematics has been nurtured by teachers and mentors throughout his life. While attending middle school at the North Raleigh Christian Academy, he was introduced to the American Math Contest and MathCounts, which inspired him to become more involved with math-related competitions. He then attended Cary Academy for two years, taking advanced math classes along with a rigorous course schedule.

Damien completed his final two years of high school at the North Carolina School of Science and Mathematics (NCSSM), which allowed him to take college-level math and science classes with peers who were as enthusiastic about these subjects as him. It was during his time at NCSSM that Damien became interested in research, and he completed his Davidson Fellows project with the encouragement of his mentor at the Research Science Institute (RSI).

Damien has played the clarinet for nine years, participating in band, marching band, orchestra, and pit orchestra for school musicals, and serving as section leader in band and orchestra. In addition to performance, he is interested in music theory, and enjoys improvising and experimenting on piano. Damien has swum competitively for seven years, qualifying for the state championships in the 100 yard breaststroke. He likes to play basketball and ultimate Frisbee.

Please see next page.



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Damien Jiang**

cont.

- 2010 Davidson Fellow
- 2010 Siemens Competition Regional Finalist
- 2010 Intel Science and Talent Search Semifinalist
- 2010 National Junior Science and Humanities Symposium Finalist
- 2010 International Olympiad in Linguistics Silver Medalist
- 2010 USA Physics Olympiad Semifinalist
- 2010 State Economics Challenge finalist
- 2010 National Merit Scholarship Finalist
- 2010-2007 USA Math Olympiad Qualifier, Honorable Mention 2009 & 2010
- 2009-2010 Princeton Math Competition, First Place individual finals
- 2009-2010 North Carolina State Math Contest (2nd place, 2009; 1st place, 2010)
- 2009 AP Scholar with Distinction
- 2009 Research Science Institute Participant (RSI)
- 2009 First Place, North American Computational Linguistics Olympiad Open Round
- 2009 USA Computing Olympiad Silver Division qualifier
- 2009-2007 Math Olympiad Summer Program Qualifier
- 2008 USA Mathematical Talent Search, Perfect Score
- 2008 iTest, First Place team captain
- 2007-2010 USA Math Olympiad
- 2006-2010 AMC Regional Book Award, school high-scorer
- 2006 National Assessment and Testing Fall Startup, First Place

Community Activities

Damien was a teaching assistant and math teacher at the local Chinese school in Raleigh, and he has tutored his peers in math at NCSSM. Damien also helped refurbish computers for underprivileged students at the Kramden Institute in Durham, North Carolina.