



Davidson Fellow
Nimish Ramanlal

(\$10,000 Scholarship Recipient)



Personal Info

Nimish Ramanlal

Age: 17

Winter Springs, Florida

School, College and Career Plans

Nimish is a junior at Seminole High School where he is currently first in his class. He also attends the University of Central Florida where he studies differential equations and complex variables at the graduate level. Nimish is currently participating in the Research Summer Institute (RSI) at the Massachusetts Institute of Technology.

Davidson Fellows Submission (*Technology: Quantum Computing*)

In his project “Programmable Quantum Computing: A New Framework with Von Neumann Type Architecture”, Nimish studied quantum computing, a computer that performs multiple computations simultaneously and exponentially faster than a conventional computer. Currently the limitations of quantum computers include both the lack of standardized programming and no generalized methodology for arbitrary search algorithms. Nimish overcame these limitations by developing a von Neumann-type architecture for writing algorithms. His findings can lead to the advancement of quantum computing, which will aid scientists in a number of fields such as advanced physics, medical research and nanotechnology.

Biography

At each stage of his project, Nimish encountered problems that seemed insurmountable. To understand cellular automata, he learned computer programming in Fortran, and in its implementation, he encountered the limitations of classical computing. To overcome these limitations, Nimish learned quantum mechanics, quantum computing, and quantum information theory to develop a new framework. He also developed a framework of programmable quantum computing. At each stage he persevered. Nimish feels great pride in his technological accomplishments and a deep sense of moral responsibility to assist the development of other young minds to achieve the same.

Nimish received the second place Grand Award in Mathematics at the Intel International Science and Engineering Fair for two consecutive years for his work in quantum computing. In 2002, he received the first place award in computer science at the Florida State Science Fair and obtained a perfect score on the America Mathematics Competition 8. Governor Jeb Bush personally recognized Nimish for his achievements.

In addition to mathematics and science, Nimish enjoys tennis and piano and is a member of the Spanish club.

Please see next page.

The Davidson Institute for Talent Development

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(Cont.)

Honors/Awards

- 2005 Davidson Fellow
- 2005 Perfect SAT II scores in Math 2 and Physics
- 2005 Advanced Placement Scholar with Distinction
- 2005 International Baccalaureate Program Candidate
- 2005, 2004, 2003 United States of America Mathematics Olympiad National Qualifier
- 2005 U.S. Physics Team Qualifying Semi-finalist
- 2005 Nelson Ying Competition, Grand Award
- 2005 Mu Alpha Theta, State Convention, First Place Multivariate Calculus
- 2005, 2004 Intel International Science and Engineering Fair, Second Place Grand Award in Mathematics
- 2004 American Mathematics Competition 10, First Place, Perfect Score
- 2004 Science Fair Seminole County Regional Fair, First Place Computer Science
- 2003 Burnett Honors College Summer Program, University of Central Florida
- 2003 Orlando Science Center Science Fair, First Place Computer Science
- 2003 Seminole Community College High School Invitational Brain Bowl, First Place Champions
- 2002 Florida State Science Fair, First Place Computer Science
- 2002 Florida State Mathcounts, First Place

Community Activities

Nimish enjoys visiting his alma mater, Jackson Heights Middle School, where he volunteers and teaches middle school students the virtues of mathematics.

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