

# Michael F. Zhang

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U.S. Citizen

## Educational Background

**University of Illinois Urbana-Champaign** • Champaign, IL • U1 Freshman 2017-present • LAS Physics • 4.0 GPA  
**Naperville North High School** • Naperville, IL • Class of 2017

## Relevant Courses

**College** • Phys 401 (current) • Phys 325 (current) • Phys 225 • CS 125 • Math 241 • Math 285 • Math 347 (current) • Math 416 (current)

**High School** • AP Computer Science A • AP Physics C: Electricity and Magnetism • AP Physics C: Mechanics • AP Calculus BC • AP Physics 2 • AP Chemistry • AP Physics 1 • AP English Language and Composition • AP English Literature and Composition • AP Biology • AP United States Government and Politics

## Acquired Skills

**Programming Languages** • Python (experienced) • Java (business) • LaTeX (business) • JavaScript (basic) • HTTP (basic) • CSS (basic)

**Data Analysis** • OriginPro (business) • Microsoft Excel (experienced)

**Report Writing** • Transients and Oscillations in RLC Circuits (Phys 401) • Frequency Domain Analysis of Linear Circuits Using Synchronous Detection (Phys 401) • Pulses in Transmission Lines (Phys 401)

## Honors & Achievements

Dean's List Fall 2017 • MultiPlan, Inc. \$10,000 Scholarship 2017-2018 • Village of Woodridge/ProLogis Foundation \$500 Scholarship 2017-2018 • National Merit Commended Student 2016-2017 • National AP Scholar 2017 • Illinois State Scholar 2017-2018 • AP Scholar with Distinction 2015-2017 • Naperville North High School Distinguished Honor Roll 2013-2017 • Science Olympiad Varsity Chemistry 3rd place medalist 2016 • Science Olympiad Varsity Astronomy 5th place medalist 2016

## Experience & Leadership

Self-Learning Advanced Topics in Theoretical Physics <i>June 2017 - present</i> <i>Woodridge, IL • Urbana, IL</i>	<ul style="list-style-type: none"><li>Studying from <i>Theoretical Physics</i> (3rd ed.) written by Georg Joos.</li><li>Have learned: "Vector Analysis", "Mathematical Representation of Periodic Phenomena".</li><li>Currently Learning: "Combination of Vibrations along different Axes. Lissajous' Figures".</li></ul>
Self Learnt Differential Equations <i>December 2017 - January 2017</i> <i>Woodridge, IL</i>	<ul style="list-style-type: none"><li>Studied from <i>Elementary Differential Equations and Boundary Value Problems</i> (10th ed.) textbook over 2017 winter break.</li><li>Earned credit for Math 285 at University of Illinois.</li><li>Expert at applying differential equation knowledge.</li></ul>
Service Desk Analyst Intern at MultiPlan, Inc. <i>June 2017 - August 2017</i> <i>Naperville, IL</i>	<ul style="list-style-type: none"><li>Handled and processed tickets initiated by healthcare professionals and their respective clients.</li><li>Completed a project that enabled MultiPlan, Inc. to comply with mandatory regulations.</li><li>Presented to the CIO, CTO, and various managers in the Information Technology department.</li></ul>
First Class Leader at Naperville North High School <i>August 2015 - May 2017</i> <i>Naperville, IL</i>	<ul style="list-style-type: none"><li>Led students through activities and provided strategies for coping with school.</li><li>Educated peers about issues faced by students such as drug abuse, mental illness, and bullying.</li><li>Provided support and help for those facing such issues.</li></ul>
Vice President of Badminton Club at Naperville North High School <i>August 2016 - May 2017</i> <i>Naperville, IL</i>	<ul style="list-style-type: none"><li>Act as stand-in for president when absent.</li><li>Disseminate information regarding scheduling and promotion.</li><li>Act as overseer for badminton activities. Set up equipment.</li></ul>
Internship at APS at Argonne National Laboratory <i>July 2016 - August 2016</i> <i>Lemont, IL</i>	<ul style="list-style-type: none"><li>Developed a Python program currently being used by beamline scientists.</li><li>Collaborated with the Sector 16: High Pressure Collaborative Access Team under the leadership of Dr. Guoyin Shen to create a program necessary for the operation of a high-powered laser.</li><li>Held weekly meetings involving scientific discussions and upcoming projects.</li></ul>

Peer Tutor at Naperville North High School <i>August 2015 - May 2016</i> <i>Naperville, IL</i>	<ul style="list-style-type: none"> <li>• Tutored peers one-on-one in various subjects in an established school program.</li> <li>• Assisted peers in developing critical thinking skills.</li> <li>• Overcame challenges as a group in solving problems.</li> </ul>
Science Olympiad Varsity Competitor <i>January 2016 - May 2016</i> <i>Naperville, IL</i>	<ul style="list-style-type: none"> <li>• Self-studied topics not included in the standard high school and AP curriculum with a partner.</li> <li>• Studied Chemistry, Astronomy, and Protein modeling.</li> <li>• Competed against various schools in Dupage County in different events.</li> </ul>

## Capstone & Independent Research Projects

CS 125 Capstone Project Typing Game <i>December 2017 - December 2017</i> <i>Urbana, IL</i>	<ul style="list-style-type: none"> <li>• Worked with partner to create a typing game using JavaScript, CSS, and HTTP.</li> <li>• Made use of Node.js and Ngrok to set up server for multiple users to play.</li> <li>• Leader of the graphical aspect of the game.</li> </ul>
AP Literature & Composition Capstone Essay and Presentation Development <i>February 2017 - May 2017</i> <i>Naperville, IL</i>	<ul style="list-style-type: none"> <li>• Analyzed a novel's conception and the multi-faceted methods of precise communication.</li> <li>• Independently researched and developed a theory on the genesis of novel writing. Wrote an essay titled <i>A Baseline Theory on Novel Construction</i>.</li> <li>• Presented research to a group of peers in a classroom setting.</li> </ul>
AP Physics 2 Capstone Project Simulation of Gases Research <i>April 2017 - May 2017</i> <i>Naperville, IL</i>	<ul style="list-style-type: none"> <li>• Created a simulation of enclosed gas particles that interacted with each other.</li> <li>• Researched the effects of initial conditions on the steady state of the system.</li> <li>• Graphically articulated properties of gas particles useful in studying the system.</li> </ul>
Humanities Capstone Treatise and Presentation Development <i>August 2016 - December 2016</i> <i>Naperville, IL</i>	<ul style="list-style-type: none"> <li>• Involved in a research independent study with a supervising mentor in an established school setting.</li> <li>• Independently researched and wrote a philosophical treatise titled <i>Humility and Introspection</i>.</li> <li>• Presented research to a group of peers in a classroom setting.</li> </ul>
AP Computer Science Simulation of Planets <i>April 2016 - May 2016</i> <i>Naperville, IL</i>	<ul style="list-style-type: none"> <li>• Created a user interacting simulation of multiple interacting planets.</li> <li>• Users can easily adjust different parameters to study the effects of gravitational force on multi-bodied systems.</li> <li>• Very interactive and user friendly.</li> </ul>

## Extracurriculars & Activities

Covenant Fellowship Church • Creative Writing Club • Guidance for Physics Students • Philosophy Club • Society of Physics Students  
Tennis • Reading • Hiking • Playing music • Writing creatively • Learning physics, math, and writing