Michael F. Zhang

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Graduation Date	**May 2021**
Citizenship	**U.S. Citizen**

Physicist • Programmer • Writer • Explainer • Creative Thinker • Problem-Solver • Layman Philosopher

Goal & Objective

Accumulate and expand my knowledge through Physics research and internships, ultimately to pursue a Theoretical Physics PhD.

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

- MultiPlan, Inc. Scholarship 2017-2018
- Village of Woodridge/ProLogis Foundation 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
- Dean's List Fall 2017
- Science Olympiad Varsity Chemistry 3rd place medalist 2016
- Science Olympiad Varsity Astronomy 5th place medalist 2016

Experience & Leadership

Self-Learning Topics in Theoretical Physics *June 2017 - present* *Woodridge, IL • Urbana, IL*	• Studying from *Theoretical Physics* (3rd ed.) written by Georg Joos. • Have learned: "Vector Analysis", "Mathematical Representation of Periodic Phenomena". • Currently Learning: "Combination of Vibrations along different Axes. Lissajous' Figures".
Self Learnt Differential Equations *December 2017 - January 2017* *Woodridge, IL*	• Studied from *Elementary Differential Equations and Boundary Value Problems* (10th ed.) textbook over 2017 winter break. • Earned credit for Math 285 at University of Illinois Urbana-Champaign. • Expert at applying differential equation knowledge.
Service Desk Analyst Intern at MultiPlan, Inc. *June 2017 - August 2017* *Naperville, IL*	• Handled and processed tickets initiated by healthcare professionals and their respective clients. • Completed a project that enabled MultiPlan, Inc. to comply with mandatory regulations. • Made suggestions for increasing the efficacy of certain tasks. Currently in the process of implementation. • Presented to the CIO Michael Kim, CTO Barry Roelofs, and various managers in the Information Technology department of MultiPlan, Inc.
First Class Leader at Naperville North High School *August 2015 - May 2017* *Naperville, IL*	• Led students through activities and provided strategies for coping with school. • Educated peers about issues faced by students such as drug abuse, mental illness, and bullying. • Provided support and help for those facing such issues.
Vice President of Badminton Club at Naperville North High School *August 2016 - May 2017* *Naperville, IL*	• Act as stand-in for president when absent. • Disseminate information regarding scheduling and promotion. • Act as overseer for badminton activities. Set up equipment.

Internship at The Advanced Photon Source at Argonne National Laboratory *July 2016 - August 2016* *Lemont, IL*	• Collaborated with Sector 16: High Pressure Collaborative Access Team under the leadership of Dr. Guoyin Shen to create a Python program necessary for conducting experiments with precision using a high-powered laser. • Program currently used by beamline scientists to perform experiments probing the structure and properties of new materials. • Learned the theoretical underpinnings of the experiments at The Advanced Photon Source. • Participated in weekly meetings, which exposed the stages of research and scientific discovery.
Peer Tutor at Naperville North High School *August 2015 - May 2016* *Naperville, IL*	• Tutored peers one-on-one in various subjects in an established school program. • Assisted peers in developing critical thinking skills. • Overcame challenges as a group in solving problems.
Science Olympiad Varsity Competitor *January 2016 - May 2016* *Naperville, IL*	• Self-studied topics not included in the standard high school and AP curriculum with a partner. • Studied Chemistry, Astronomy, and Protein modeling. • Competed against various schools in Dupage County in different events. Placed 3rd in Chemistry and 5th in Astronomy.

Projects & Research

CS 125 Capstone Project Typing Game *December 2017 - December 2017* *Urbana, IL*	• Worked with partner to create a typing game using JavaScript, CSS, and HTTP. • Made use of Node.js and Ngrok to set up server for multiple users to play. • Leader and programmer for the graphical and audio aspect of the game.
AP Literature & Composition Capstone Essay and Presentation Development *February 2017 - May 2017* *Naperville, IL*	• Analyzed a novel's conception and the multi-faceted methods of precise communication. • Independently researched and developed a theory on the genesis of novel writing. Wrote an essay titled *A Baseline Theory on Novel Construction*. • Presented research to a group of peers in a classroom setting.
AP Physics 2 Capstone Project Simulation of Gases Research *April 2017 - May 2017* *Naperville, IL*	• Created a simulation of enclosed gas particles that interacted with each other. • Researched the effects of initial conditions on the steady state of the system. • Graphically articulated properties of gas particles useful in studying the system.
Humanities Capstone Treatise and Presentation Development *August 2016 - December 2016* *Naperville, IL*	• Involved in a research independent study with a supervising mentor in an established school setting. • Independently researched and wrote a philosophical treatise titled *Humility and Introspection*. • Presented research to a group of peers in a classroom setting.
AP Computer Science Simulation of Planets *April 2016 - May 2016* *Naperville, IL*	• Created a user interacting simulation of multiple interacting planets. • Users can easily adjust different parameters to study the effects of gravitational force on multi-bodied systems. • Very interactive and user friendly.

Extracurriculars & Activities

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