Peter Zhang

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Education

Montgomery Blair High School Silver Spring, MD   Class of 2020

Science, Mathematics and Computer Science Magnet Program

- Coursework: Analysis of Algorithms, Artificial Intelligence, Algorithms and Data Structures, Computer Graphics, Multivariable Calculus, Differential Equations, Statistics, Linear Algebra, Organic Chemistry, Magnet Biology
- Scores: 3.94 GPA, 4.76 wGPA, 36 ACT

Skills

Languages

- Java, Python w/ Jupyter, HTML/CSS, Javascript/ReactJS, PHP/SQL, R w/ Shiny, MATLAB, LaTeX

Applications

- MS Office, MiniTab, Autodesk Inventor/Blender, GitHub, IDLE/Eclipse/IntelliJ

Research Experience

Statistics Interface of Transcriptional Pharmacodynamics   Jul 2019–Present

National Cancer Institute; Dr. Yingdong Zhao

- Scraped the NCI transcriptional pharmacodynamics database of over 1 billion datapoints
- Designed a dynamic R Shiny interface for conducting statistical analyses

Root and Rule-Based Natural Language Processing   Jun 2019–Jul 2019

National Institute of Standards and Technology; Dr. TN Bhat

- Automated the download of scientific articles and preprocessing of sentences
- Designed a rule-based algorithm to construct subject-predicate-object triplets
- Used a modified LDA algorithm to improve topic modeling

Neural Cryptanalysis for Classical Ciphers   Apr 2019–Jun 2019

University of Maryland CS Department; Prof. William Gasarch

- Compiled an original English corpus of several million words
- Trained ANNs to crack ciphers with more speed and accuracy than traditional methods

Systems Modeling of Earth's Carrying Capacity   Mar 2019–Apr 2019

Independent Research

- Collected data on 35 environmental and development indicators over two decades
- Used Spearman's correlation and regression analyses to model relations between variables
- Computed theoretical limits on Earth's carrying capacity with Nelder-Mead optimization

Professional Experience

Webmaster and Research Assistant   Dec 2018–Present

Premier Debate Institute, Los Angeles; Bob Overing, Director

- Design and maintain webpages at premierdebate.com
- Publish and promote research briefings used by thousands of students

Awards

International Mathematics Modeling Challenge; Finalist	2019
Blue Ocean Entreprenuership Competition; Semi-Finaist	2019
High School Mathematics Modeling Challenge; Finalist	2019
Hack Pennsylvania; First Place	2019
USA Computing Olympiad; Gold Division	2019
American Computer Science League; All-Star Qualifier	2018
Carnegie Mellon Informatics and Mathematics Competition; Honorable Mention	2018