Peter Zhang

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Education

Montgomery Blair High School Silver Spring, MD; GPA: 3.96   Class of 2020
  – Science, Mathematics and Computer Science Magnet Program
  – Coursework: Analysis of Algorithms, Artificial Intelligence, Algorithms and Data Structures, Graphics, Multvariable Calculus, Differential Equations, Statistics, Linear Algebra, Organic Chemistry, Quantum Physics
  – Scores: ACT - 36; SAT - 1570

Skills

Programming Languages
  – Java, Python, HTML/CSS, Javascript/ReactJS, PHP/SQL, R, MATLAB, LATEX, Bash.

Applications
  – MS Office, MiniTab, Autodesk Inventor/Blender.

Research

Root and Rule-Based Natural Language Processing   Jun 2019–Present
NIST; Dr. TN Bhat
  – Automated the download of scientific articles and preprocessing of text
  – Designed rule-based algorithm to construct subject-object-predicate triplets
  – Improved topic modeling and document clustering by using triplets
  – Incorporated into NIST's MGI Data Repository.

Neural Cryptanalysis for Classical Ciphers   Apr 2019–Jul 2019
UMD 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

Awards

American Regions Mathematics League; Division A, 8th Place	June 2019
International Mathematics Modeling Challenge; Finalist	May 2019
Ronald Reagan Great Communicators Debate; Mid-Atlantic Champion	May 2019
High School Mathematics Modeling Challenge; Finalist	Feb 2019
Hack Pennsylvania; Best in Show	Jan 2019
USA Computing Olympiad; Gold Division	Jan 2019
American Computer Science League; All-Star Qualifier	April 2019
Carnegie Mellon Informatics and Mathematics Competition; Computer Science Finalist	Jan 2018