

JAKE CUI

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TJHSST '16 || Harvard College '20

Current senior at TJHSST and rising freshman at Harvard College, hoping to major in computer science or bioinformatics. 4+ years of research experience, 3+ years of experience in computer science. Looking to explore rising applications of CS and machine learning in healthcare and entrepreneurship.

HONORS/ACHIEVEMENTS

Science & Technology

- 2016 Intel STS National Semifinalist (300 in the US), Research project on predicting ordered protein binding sites with machine learning.
- 2015 Selected as a Research Science Institute (RSI) Scholar (one of 80 students worldwide) by the Center for Excellence in Education (CEE).
- 2014 Google Science Fair Regional Finalist, Research project on improving chemopreventive cancer treatment.
- 2015/2013 Intel International Science and Engineering Fair (ISEF) Finalist, research in concurrent cancer treatment and monitoring.
- 2015 Junior Science and Humanities Symposia (JSHS) Virginia state finalist, Outstanding Research in Medicine and Health.
- 2015/2013 Fairfax County Regional Science and Engineering Fair Grand Prize and First Place Winner in Medicine and Health Sciences & Biochemistry.
 - Distinguishing Achievement 1st Place Award from United States Public Health Service
 - Bright Future Award
- 2015 Virginia Junior Academy of Science (VJAS)
 - 1st place Cancer Research Award
 - 1st Place in the category of Chemistry & Rodney C. Berry Chemistry Award
- 2015/14/13 National Science Olympiad TJ team co-captain, engineering events lead, State SO 1st place winner in Mission Possible, Scrambler, MagLev, Roller Coaster and Gravity Vehicle.
- 2014 Microsoft PilotDC Hackathon, Winner of “Best Web App” & “Exceptional Innovation Design & Presentation”.
- 2014 Microsoft Technology and Startup High School Program Finalist (Reston)

Volunteer Awards

- 2014/2013 President’s Volunteer Service Gold Award for founding & volunteering with **Youth Inspire**.
- 2015 Outstanding Service Award, China Association of Social Workers.
- 2015 Nordstrom Scholarship Semifinalist. Award is based on academic achievements, awards/honors, leadership, school activities, and community/volunteer activities.
- 2015 Kohl’s Cares® Scholarship Winner, in recognition of outstanding volunteer efforts and contributions within the community.

PUBLICATIONS

International Journal of Sciences: Basic and Applied Research (IJSBAR),
Cui, Jake, Development of a Novel Near-Infrared Fluorescent Theranostic Cancer Prodrug, 2015

The Journal of Science Mathematics and Technology (Teknos),
Cui, Jake, Synergy of Raloxifene and S-equol to Create a Novel Chemopreventive Treatment for Breast Cancer,
Volume XXIII, 2014

RESEARCH EXPERIENCE

- 2015 **Research Intern**, Harvard Medical School, Children's Hospital Bioinformatics Program, Boston
Children's Hospital: *A Machine Learning Approach to Identify Ordered Binding Regions on Order-Disorder Protein Interfaces*
- 2014 **Research Intern**, Center for Drug Discovery, Lombardi Comprehensive Cancer Center, Georgetown University: *Development of a Novel Near-Infrared Fluorescent Theranostic Anticancer Agent*
- 2013 **Research Intern**, Department of Biochemistry & Molecular Biology, School of Basic Medical Sciences Peking University: *Improving Raloxifene's Affinity with Estrogen Receptor Beta Through Synergy with S-Equol as a Novel Chemopreventive Treatment*
- 2012 **Research Intern** Department of Biochemistry & Molecular Biology, School of Basic Medical Sciences Peking University: *Increasing the Anti-Cancerous Properties of Crocus sativus Extract Through the Utilization of Liposomal Nanoparticles.*

COMMUNITY SERVICE

- 2012-present Co-Founder/Executive Director of **Youth Inspire**, a global non-profit designed to unite teens in the fight against cancer.
- 2013-present Science Buddies Online Forum Volunteer, student mentor helping other students' science research.
- 2012-present Official Red Cross Volunteer.
- 2013-present X-STEM Coordinator/Ambassador for TJ.
- 2010-present Special Volunteer for the 1st and 2nd USA Science and Engineering Festival at Washington DC.
- 2012-present INOVA Fairfax Hospital Volunteer.

LEADERSHIP/ACTIVITIES

- SGA Executive Committee member and Class Council member of the Class of 2016 at Thomas Jefferson High School for Science and Technology
- Executive Director, **Youth Inspire**
- President, Bio-Technology Club
- Co-Captain, TJ Science Olympiad Team
- Member of Medical Explorers Club at INOVA Fairfax Hospital
- Member of Society for Science & The Public (SSP)
- Member of American Association for Cancer Research
- JAMTech Web App Dev 6,7,8,9 & X
- Junior Varsity Soccer, Varsity Golf

COMPUTER SKILLS

Java, Python, R, Machine Learning, Data Mining, PyMol, LaTeX, JavaScript, HTML, Ruby on Rails, Unix/Linux, App Development, Microsoft Word, Microsoft PowerPoint, Microsoft Excel, TI Graphing Software

COURSEWORK

AP Chemistry, AP Biology, AP Computer Science, AP Calculus BC, Artificial Intelligence, AP US History, AP Chinese, Design & Technology, Mobile App Development, Multivariable Calculus, AP Microeconomics, AP Macroeconomics, AP English Language, AP Comparative Government and Politics, Geosystems

MIT Online Courses:

- Principles of Chemical Science
- Mathematics for Computer Science

Harvard/MIT online course EdX: CS50

STANDARD TESTS

SAT: 2340 (R: 800 M:800 W:740)

SAT II: Math: 800 Biology: 780 Chemistry: 780

GPA

4.44/4.0