HARISH BOMMAKANTI

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EDUCATION

Rouse High School, Leander, TX May 2020

- Rank: 2/383, GPA: 4.0
- SAT: 1520 (730 English, 790 Math)
- AP Scores
    - Computer Science Principles (5)
    - Human Geography (5)
    - World History (5)
    - European History (4)
    - United States History (5)
    - English Language and Composition (4)
    - Computer Science A (4)
    - Statistics (5)
    - Calculus BC (5)
    - Physics C: Mechanics (5)
    - English Literature and Composition (4)
    - Macroeconomics (5)
    - US Government and Politic (4)

University of Texas at Austin, Austin, TX May 2024

Bachelors of Science in Computer Science (Incoming Freshman)

TECHNICAL SKILLS

- Languages: Proficient with Java, Python, LabVIEW, Javascript, HTML, CSS; Familiar with FORTRAN 90
- Software: Proficient with Git/Github, Linux; Familiar with Autodesk Inventor

EXPERIENCE

Computational Hydraulics Group (CHG) Research Lab at UT Austin, Austin, TX June 2019

Research Intern

- First high schooler to work with the CHG Research Lab at UT Austin.
- Ran simulations on Texas Advanced Computing Center (TACC) supercomputers using FigureGen and ADCIRC, software developed and used by the CHG Research Lab which use highly complex and accurate mathematical equations to simulate storm surge, tides, and coastal models before, during, and after a hurricane.
- Modified Fortran code and created Python scripts using data science libraries such as Matplotlib, Numpy, and Pandas along with development tools such as Jupyter Notebooks to help visualize results of FigureGen and ADCIRC simulation result files which usually spanned thousands of lines.
- Simulations were run on storms such as Hurricanes Harvey, Ike, and Rita.

NASA High School Aerospace Scholars, Houston, TX June 2019

Participated in year long coursework, Intern in June

- Selected as 1 of 500 Texas high school juniors to work through a NASA certified online course from November 2018 to May 2019.
- Selected as 1 of 270 juniors out of the initial 500 to be an intern at the NASA Johnson Space Center (JSC) for one week in June, 2019, where I received exclusive tours of JSC facilities and research labs.

NASA STEM Enhancement in Earth Science (SEES) Internship at UT Austin, Austin, TX July 2018

Intern

- Selected as one of 46 out of 500 applicants nationwide for the joint NASA, UT Austin Center for Space Research (CSR), and Texas Space Grant Consortium (TSGC) SEES internship.
- Worked with Dr. Brent Porter from UT Austin CSR with 3 other interns in the MAGIC (Mid-American Geospatial Information Center) Flood Response project group.
- Gathered National Weather Service Quantitative Precipitation Estimation (QPE) products derived from Radar with rainfall gauge values via REST endpoints and JS frameworks/libraries such as JQuery and LeafletJs. Worked to incorporate NWS data in a website published on UT Austin CSR's website.
- Developed a Python script to automate an extremely lengthy and manual task done in ArcGIS software by Dr. Porter. Our script is now used by Dr. Porter to save him around 10 minutes of clicking a day.
- Simulated recent flood events with the goal of improving future flood response scenarios.

PROJECTS

FRC Scouting Application

- Creating and Published a web application for the school's robotics team to automate the process of scouting, or gathering data from other teams, in FRC robotics competitions.
- A large challenge is that an internet connection is illegal during competitions, so the app coped with loading local data during competitions and uploading the data to a server once exiting competitions, from multiple user endpoints.
- Innovative application as the software will be able to be used for multiple years and seasons on end, unlike most FRC scouting apps online which are hardwired around a certain season.
- Application collected/displayed data from other teams and include features for ranking teams based on season-specific characteristics.
- Used HTML, CSS, Jekyll, and Javascript
- Github repository: https://github.com/Team6321/Scouting_App
- Website: https://scouting.rouserobotics.com

Image Processor

- Built an image processor with a command line interface in Java which takes input images and outputs an image modified with transformations such as edge detection and blurring.
- Github repository: https://github.com/harishbommakanti/image_processor

SEES Website Application

- Website created during the NASA SEES internship to display a collection of features that flood response professionals can use for flood response with three other Flood Response SEES interns.
- Used technologies such as HTML, CSS, JavaScript, jQuery, LeafletJS, and REST API/endpoints to gather and display the data.
- Published on UT Austin CSR's website: http://agw-prim-green2.csr.utexas.edu/SEES2018/

High School Student Corner

- Created a website to help consolidate resources for common high school core subjects.
- Github repository: https://github.com/harishbommakanti/HS-Student-Corner

ACTIVITIES & LEADERSHIP

Rouse Robotics Club, Leander, TX August 2016-Present

Software/Electrical lead, Program Manager

- As a core software member throughout high school, I wrote sustainable code, tutored new members in Java and LabVIEW, and implemented more complex algorithms like PID controllers for robotics competitions. Also, as an electrical member from 10th-12th grade, I helped create and monitor the electrical and hardware control systems for the robot.
- As the team Program Manager for 11th-12th grade, I rallied members for meeting discussions, created calendars, and spearheaded communication among the team.
- Involved in pioneering a task management system for the club.
- Participated in both FTC (FIRST (For Inspiration and Recognition of Science and Technology) Technical Challenge) Team 7064 and FRC (FIRST Robotics Challenge) Team 6321 from 9th to 11th grades.

UIL Academics, Leander, TX August 2017-May 2019

Math and Computer Science Team Lead

- UIL Mathematics
    - Participated as a core member in the UIL Number Sense (mental math), Calculator (complex calculator applications), and Mathematics (all around mathematics) competitions.
- UIL Computer Science
    - In UIL Computer Science competitions, I participated in the Written (assessing all aspects of Java programming) and Hands On (collaborating with other team members to develop efficient algorithms) portions of the UIL Computer Science competitions.

HONORS AND AWARDS

- Inducted into the National Spanish Honor Society in 2016.
- FRC Awards
    - Rookie All-Star Award in 2016 at the Alamo Regional
    - Invited to attend FIRST World Championships in Houston in 2016
    - Dean's List Semifinalist in 2018
        - One of two team members nominated per year by team mentors for notable dedication and commitment towards the team and furthering FIRST ideals.
    - Nominated for Dean's List in 2019
    - Creativity Award at the Pasadena District Event in 2019
        - Recognized the ingenuity of a unique mechanical design consistently allowing the robot to lift itself around 1.5 ft off the ground.
    - Ranked top 15 teams at all district event competitions in 2019.
    - Invited to attend the FIRST in Texas District (FIT) Championships in 2019.
    - Ranked top 12 at the FIT Championship event.
    - Creativity Award at the FIT Championships in 2019
        - Recognized the ingenuity of a unique control system programmed by me using LEDs and a pressure sensor to indicate the state of an intake system.
    - Invited to attend the FIRST World Championships in Houston in 2019
    - Ranked top 20 in the Turing Division of the FIRST World Championships in 2019
    - Quarter Finalists of the Turing Division at the FIRST World Championships in 2019
- UIL Mathematics
    - Team ranked 2nd place overall at District level in Mathematics in 2018.
    - Ranked 8th individually at District level in Mathematics in 2018.
- 3rd place at Lockheed Martin's Cyberquest competition in October 2018
    - I aided my team in solving cryptology and internet security problems.
- AP Awards: AP Scholar with Honor, AP Scholar with Distinction, National AP Scholar
- Principal's Student Leadership Team
    - A group hand-selected by the high school principal to contribute towards school projects and events to help better the school environment, infrastructure, and spirit.
- PSAT/NMSQT Commended