



STEMBoost Newsletter

Issue XI

June 2021

2021-2022 Officer Team and 2021 Summer

Workshops Start

Ryan Li

This month, STEMBoost has begun the process of switching officers, with some members of the 2020-2021 officer team graduating high school. These graduating officers include David Smith, Flora Huang, Saraang Kashyap, Conner Yin, and Grace Kuo. Other graduating seniors who were instructors within STEMBoost include Eshani Patel and Nishanth Arumugam. We would like to congratulate these people on their meaningful and long-lasting contributions to STEMBoost and wish them well on their future endeavors in college and beyond.

In addition, STEMBoost is in the process of recruiting new officers who will be a part of the 2021-2022 officer team. These people will help support the curriculum, operations, multimedia, as well as communications and PR aspects of STEMBoost. We are striving to complete this process by the conclusion of this summer.

Meanwhile, the rest of the 2021-2022 officer team has been busy coordinating and operating the STEMBoost 2021 summer workshops, which officially began on June 14. The new president of STEMBoost is Dylan Yang, and the curriculum head is Edwin Xie, with Aseem Rajopadhye, Arthur Perng, Daphne Guo, Varun Kumaravelu, and Arthur Chan being the curriculum leads within their respective subject areas. Ryan Li and Amol Rama are the vice presidents of the operations department, Iona Xia and Joseph Lee are the vice presidents of the communications & PR department, and Deetshana Parthipan and Angela Zhang are the vice presidents of the marketing & design department. Last but not least, Leela Srinivas is the vice president of the multimedia department, and Eric Ju is the director of operations for cybersecurity. We look forward to another successful year for both the Kennedy + Monta Vista Science Olympiad teams and the STEMBoost organization!

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Fun Fact

Where is the world's largest waterfall located?
(See answer in the back)

Editorial – The Value of Individual DNA Ownership

Joseph Lee

In 2003, the Human Genome project was completed, a 13 year-long worldwide effort by scientists to catalog every base pair of DNA in the human genome (3). Since then, geneticists have refined sequencing methods and found practical applications, from obtaining information about risk factors for certain diseases to using it for facial reconstructions. Despite the value of this information, it is not well protected by today's laws and regulations. In order to protect an individual's privacy and safety, it is essential that people have rights to their own genetic information.

A lack of individual ownership of genetic data leads to enormous potential for discrimination based on whether a person might develop a disease. Although the Genetic Information Nondiscrimination Act (GINA) exists to reduce genetic discrimination, it only covers jobs and health insurance. In 2012, a woman was denied life insurance after testing positive for a gene associated with breast cancer, BRCA1 (7). However, BRCA1 does not

always indicate breast cancer, and breast cancer is far from a death sentence, leaving little reason to deny her. By giving people rights to ownership of their genetic data, they can be the ones to decide whether or not they will disclose it, eliminating the issue of discrimination. Currently, the absence of individual genetic ownership brings inherently unfair disadvantages to those who were simply unlucky at birth.

The absence of individual ownership can also lead to abuse of genetic information by entities for their private gain, a potentially devastating problem. In the Xinjiang region of China, documents from investigative journalists have revealed DNA data is collected from family members of government targets, then used maliciously. Detainees in re-education camps are released based on the behavior of monitored family members (2). Through this violation of human rights, it is clear that genetic data can be used to further a corrupt agenda to deepen social control. Therefore, it is not only vital to preserve the level of privacy we currently hold regarding our genetic info but strengthen it as a safety measure to prevent its exploitation.

Finally, one's genetic data is neither safe nor private under reputable corporations. Anonymized genetic data can easily be traced back to an individual without personal information (5). Furthermore, the value of genetic databases makes them a strong target for hackers. Genealogy sites GEDmatch and MyHeritage were both attacked in 2019, and around 90 million accounts total were put at risk (1). The implications of this are unimaginable, as the ones who stole this data could ransom it for enormous sums of money and put it up for sale to other parties, including insurance companies or the dark web. DNA ownership should be granted to individuals so that they don't have to trust in these corporations.

Without sole ownership of genetic information by individuals, there are imminent threats regarding medical discrimination, abuse of power, and security regarding information theft. Self-management and awareness about the value of one's DNA information is the key to ensuring the safety of ourselves and society.

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Answer: The world's largest waterfall is located in the Denmark Strait between Greenland and Iceland. Differing water temperatures results in cold water plunging down an 1,500-foot drop in the ocean floor, nearly 3.6 times the height of the largest waterfall on land.