Description

The Potential of Research Competitions

There is no doubt that research competitions can inspire creative solutions to problems and significant scientific breakthroughs:

- Charles Lindbergh's crossing of the Atlantic Ocean in 1927 in his *Spirit of St. Louis* experimental aircraft was encouraged by the 1919 Orteig Prize offered by New York hotelier Raymond Orteig.
- In October 2004, aerospace engineer Burt Rutan, won the $10 million *X Prize* after his experimental spacecraft, *SpaceShipOne* (funded by Microsoft co-founder Paul Allen), succeeded in launching into space and returning to earth twice in two weeks. His company, Tier One, was the first non-government organization to achieve the goal of the prize, which had been launched in 1995.
- January 2015 saw the release of the movie *Spare Parts* which documents the efforts of four Hispanic students from the Carl Hayden Community High School in West Phoenix, Arizona who competed in the Marine Advanced Technology Education (MATE) Center's Remotely Operated Vehicle (ROV) Competition against better supported and better funded institutions such as the Massachusetts Institute of Technology to design a ROV (nicknamed "Stinky") that went on to win technical writing, design, and special achievement awards. MIT's budget for the competition was $11,000. Stinky was built with $800 of spare parts.

A Competition or a Challenge?

Research challenges typically offer well-annotated data sets upon which you can test your own research technique or algorithm, or just enjoy the opportunity to test your brain by solving the problem posted by the creator of the challenge. *Kaggle* hosts a list of open predictive modeling competitions—some with financial prizes, but most with the reward of "knowledge."

Challenges can definitely be a good option for research practice or to find a serendipitous match for an algorithm you may already be working on. In most cases, however, verification of your data may best be served either with your own data set, where the collection has been rigorously monitored, or a publicly available dataset that aligns directly with your field.

Commercial Challenges

GlaxoSmithKline (GSK) holds an annual Discovery Fast Track Challenge where the winners are given the chance to partner with GSK in the commercial development of their drug discovery concept. It is aggressively promoted as a challenge but also serves tremendously well as both an industry marketing initiative and a market research project to catch any smaller research teams that may have gone under GSK's radar.

Many high school, undergraduate, and graduate contests of this nature do inspire future scientists to think outside the textbook and pursue research beyond the boundaries of their course syllabus. If there are commercial opportunities to be found, the contestant winners (and their academic institutions) will find willing partners to help them bring those ideas to fruition.

Consider the Return on Investment

Unless your degree program requires participation in a challenge/competition as part of your graduate coursework, or your idea is truly groundbreaking and/or marketable, most competitions represent an expenditure of effort with only a partial chance of a successful financial outcome. For most academic researchers, unless there is a coincidental topic alignment, involvement with research competitions should be restricted to a supervisory role for research students who need the practice or can't resist the temptation to try their luck.

Maximization of Effort

With only so many hours in a day, chasing competitions in search of marginal fame and probably limited fortune seems like a fruitless exercise. Better to devote your efforts to research funding and/or research collaboration efforts so that your work finds a receptive audience and makes the valuable contribution to the field to which you aspire.

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