

ACADEMIC DATA DRIVE

Universities create data–science hubs

Academic science, not just industry, has a growing need for data scientists. A US\$58-million effort launched last year aims to fill this gap by creating data-science hubs at the University of Washington in Seattle, the University of California, Berkeley (UCB), and New York University. The universities, along with the Gordon and Betty Moore Foundation in Palo Alto, California, and the Alfred P. Sloan Foundation in New York City, are co-funding the hubs. Grants from the Moore Foundation will be given to investigators to develop and refine data-use tools.

Karthik Ram, an assistant researcher

at UCB's newly created Berkeley Institute for Data Science, is one of the first beneficiaries. His career advancement depends on his contributions of open-source code and efforts to make data more reproducible, rather than on the conventional criteria for tenure-track posts, such as publication and citation records.

Moore Foundation programme manager Chris Mentzel describes Ram and his colleagues as pioneers in a field that is gaining momentum. "We are trying to create homes for these types of researchers," he says. **M.B.**

with the people who use the products.

But PhD graduates have to be comfortable with abandoning quests for ever-greater accuracy in favour of commercial goals. Once a data model is working, academics might focus on sophisticated tweaks to improve accuracy and account for outliers. "But in industry, you'd be saying, 'How do I build this into the software; how do I make sure that it won't crash?'" says Heineike. "You have to go the distance for what users really want, and that's something you don't necessarily have time for in academia."

Some hiring managers worry that a desire to craft increasingly accurate models can lead academicians into an unproductive morass. John Baker, who founded a consultancy for data-science services called Datakin in Boston, Massachusetts, recalls an astrophysicist nicknamed 'Dark Matter' by his colleagues because his zeal for perfecting data models meant that he never completed his projects.

David Freeman, head of security data science at the networking firm LinkedIn in Mountain View, says that it is possible to weed out those with such tendencies during interviews. When asked to describe their accomplishments, the most-promising candidates focus more on codes they have implemented than papers they have published. Portfolios developed independently or at boot camps are another good sign of an industry fit, says Baker. "You can tell who is really academic and who really has potential by their projects."

Will Cukierski got noticed this way. He earned his PhD at Rutgers University in New Brunswick, New Jersey, where he taught computers to recognize telltale pathologies in cancerous tissues. But at night, he worked on a challenge from streaming-media provider Netflix: a US\$1-million prize to anyone who could best its own movie-recommendation algorithms. He didn't win, but he caught the bug and started to spend his free time on

similar contests hosted by the data-science company Kaggle, based in San Francisco. In 2012, company executives contacted him — they had noticed his entries and thought that he could earn a spot on their team. He started there as a data scientist a week after he defended his PhD.

For many PhD holders, the key to success is to find a company whose product or service fascinates them, says Sebastian Gutierrez, author of *Data Scientists at Work*. "You need someone who is excited enough about the business that they actually care that they need to meet quarterly budgets and goals."

Posts for data scientists are starting to emerge in academia (see 'Academic data drive'), but many find the industry environment more appealing. "In industry I can use 20% of the time to achieve 80% of the goal, instead of vice versa," says Shani Offen, formerly a research professor in neuroscience at New York University and now a data scientist at the question-answering site About.com, based in New York. Tommy Guy, a data scientist at the tech giant Microsoft in Bellevue, Washington, likes being rewarded for getting the right answer, no matter what it is. For instance, he can use data analysis to conclude that a proposed new feature would be unpopular with users and argue to dump it, saving the company a considerable sum and earning accolades. Conversely, he says, academia rarely rewards negative results.

Freeman likes the pace at LinkedIn. He recalls doing cutting-edge research in his postdoctoral work at Stanford University in California. "But the thing I was working on would not be seen in actual use for 20 years, if ever. I was looking for something with more immediate impact." And there's nothing like constant deadlines to focus the mind. ■

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GRANTS

Charity for research

Three US philanthropies have pledged a total of US\$148 million to support early-career researchers. The Howard Hughes Medical Institute (HHMI), Bill & Melinda Gates Foundation and Simons Foundation will collectively award up to 70 five-year grants of \$100,000–400,000 a year, adjusting the amount to account for recipients' other funding. To qualify, applicants must have received a competitive grant within the past 2 years, have 4–10 years' experience in a tenure-track or equivalent position and work at an eligible institution. The Faculty Scholars Program should counter a push towards 'safer', but often less-creative proposals, says HHMI chief scientific officer Erin O'Shea. Applications are due on 28 July.

CAREER PATHS

Staff scientists backed

Non-faculty researchers in university labs and core facilities will soon be able to apply for grants from the US National Cancer Institute in Bethesda, Maryland. The 'research specialist' award addresses the unsustainable growth in the number of postdoctoral positions and reflects an effort to both develop new career paths and provide stability for biomedical labs, says Dinah Singer, director of the institute's division of cancer biology. Lab-research scientists, facility managers and data scientists can work with a sponsoring principal investigator to apply for renewable grants that will cover specialists' salaries and travel. The pilot programme would award 50–60 five-year grants, totalling US\$5 million in the first year.

FUNDING

Success takes repetition

A survey of 113 astronomers and 82 psychologists who applied for US federal funding between January 2009 and November 2012 found that applications took on average 116 hours to prepare for principal investigators and 55 hours for co-investigators. More submissions increased the chances of receiving funding, but time spent writing a proposal had little correlation with success. The authors of the survey (T. von Hippel and C. von Hippel. *PLoS ONE* **10**, e0118494; 2015) recommend that investigators avoid programmes with low funding rates unless they are prepared to write two or more proposals a year or have an exceptional application.