

At Duke, Big Data Means a Better Tomorrow

Can Big Data stop a health epidemic in its tracks? Fight poverty and unemployment? Uncover the brain's vast, untapped capabilities? Recreate ancient cities?



Undergraduate students spent the summer analyzing statistical data on high-dimensional microRNA, genetic information taken from patients. Then, they created a machine-learning tool that can distinguish between viral and bacterial infection with high accuracy. Their work advances an important global health goal: preventing the over-prescribing of antibiotics. They worked closely with faculty and practitioners from **Duke Medicine** as part of iiD's **Data+** program, which gives students the chance to help clients identify data problems and build innovative solutions.

iiD and **MEDx**, a partnership between Duke's engineering and medical schools, are training the next generation of engineers, researchers, and clinicians to work together on new therapies and tools to improve patient care.



It can. Through Duke's **Information Initiative (iiD)**, pioneering researchers are leveraging the power of data to promote global health, stimulate economic prosperity, unlock history's secrets, and more. At the same time, they are teaching students how to recognize critical problems that can be addressed by data and then roll up their sleeves to solve them.

iiD is quickly becoming the nationally recognized leader in interdisciplinary research and education surrounding Big Data. But to fuel our momentum, grow our programs, and meet escalating demand for our expertise, we need support from alumni and friends. ***With your help, we can make a profound impact on the future.***

The Faces of iiD

Faculty Members



Such as **Matthew Harding** and **Ingrid Daubechies** collaborate with experts from different fields to address complex issues through mathematics, statistics, and information science.

Harding, an assistant professor of public policy and economics, studies how individuals make choices regarding nutrition and energy consumption. He is interested in creating “triple-win” solutions to problems—such as combating obesity and meeting the world’s growing demand for energy—that benefit consumers, are profitable for firms, and have a positive impact on society.

Daubechies, one of the world’s most prominent mathematicians, collaborates with artists, historians, and conservators to repair ancient works of art while preserving authenticity. She uses math techniques in image analysis to identify crack patterns, color degradation, and other details in relics and then reimagine them as they once were.

Undergraduates

Like **Lauren Kelly '16** are becoming information innovators. Lauren’s **Bass Connections** team uses Big Data to promote government transparency. They boil down huge datasets and then create infographics and other tools to



help people understand policies and where tax dollars are going. Bass Connections gives students the chance to tackle significant research challenges alongside faculty and practitioners.

Graduate Students

Like **Matthew Panhans**, a Ph.D. candidate in economics, advance



cutting-edge research and education. Matthew has helped undergraduates work with data to investigate how effective state and local business incentives are at boosting employment and wages. The students presented their findings to The North Carolina Justice Center, which will use the information to improve the economic security of working families.

Gift Opportunities

From mathematics to medicine, and sociology to statistics, iiD brings together the greatest minds at Duke. Together, we can teach future generations to live, work, and lead in a data-driven world.

Your gift can:

- **Build iiD’s faculty bench** by bringing a professor of the practice to Duke. This expert will be committed to teaching students how data and information science intersect with global health, public policy, finance, and other important areas.
- **Provide students immersive experiences** working with datasets. Bass Connections project teams, summer Data+ projects, internships, and other programs forge career pathways and open remarkable doors for students.
- **Create a graduate or postdoctoral fellowship** to support the country’s greatest young talent. Fellows help Duke attract stellar faculty, mentor undergraduates, and make invaluable contributions in our labs.

Let’s empower tomorrow’s leaders to move the world forward with Big Data.