An Important Milestone for Data Science

By Joel Seligman

Soon the University of Rochester will achieve an important milestone. In the coming months we will open Wegmans Hall, home of the Goergen Institute for Data Science and hub of interdisciplinary data science research. In 2013, we characterized data science as a core priority in our University strategic plan, and in 2015 we termed data science as one of the four primary goals that will help our University ascend to The Next Level. Wegmans Hall will unite many of our wide-ranging competencies in data science under one roof.

Data science is a critical discipline of the 21st century, focused on extracting meaning from massive amounts of complex information that are difficult to manipulate and understand with traditional processing methods. Our capacity to have the right technology, outstanding faculty and students, and sophisticated programs not only in computer science but in specific applications of data science will be consequential to our University's efforts to continue to be a leader in sponsored research, education, and scholarship. Rochester researchers already are using data science to advance the fields of health analytics; artificial intelli-

tics increasingly process massive amounts of data, and use those data to make forecasts and predictions that will influence decisions. Our faculty and students today are applying data science to real-world challenges.

Huaxia Rui, assistant professor of computers and information systems at Simon Business School, for example, is developing a system for recognizing trends on social media to help retailers make important decisions about products and services. Re-

between the University of Rochester Medical Center and Arts, Sciences & Engineering that leverages computing and analytics, sensors, 3-D imaging and modeling, and virtual and augmented reality technologies to address current and emerging challenges in medicine. By collecting numerous points of data and identifying patterns from electronic health records and devices, physicians will be able to make precise and direct improvements in patient care and outcomes.

Mitchell Lovett, associate professor of marketing at Simon, is creating methodologies to help guide companies with making product-pricing decisions, optimizing store-space allocation, and assessing the impact of competitive stores to the region. Retailers and manufacturers will have new ways to understand customer decision-making patterns, which will allow them to make constant informed adjustments in marketing strategy.

Zhishan Pan '17, a double major in data science and financial economics, since September has worked as an intern in the Wegmans Customer Insights Group. Last semester, he began working on a predictive model that uses customer shopping data. When fully developed, the model will help Wegmans identify patterns and buy-

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gence and cognitive science; and developing new methods, tools, and infrastructure.

To galvanize this effort, we have raised $31 million in private philanthropy, added to $13 million in contributions from New York State. Our Center of Excellence in Data Science is housed in the Goergen Institute and funded by the New York State Department of Economic Development. Our researchers are committed to applying data science methods and tools to solve some of the world's greatest challenges in medicine and health; imaging and optics; energy and the environment; food and agriculture; defense and national security; economics and finance.

Business, science, health care and poli-

cently he began working with Wegmans to monitor food consumption trends on Twitter and Facebook, detecting signals that reflect new food consumption patterns. If there is a spike, for example, in conversations on social media among shoppers relating to a new superfood full of antioxidants, the retailer could leverage the apparent increased interest to drive new product choices. Professor Rui says in the next several decades, data will be "driving everything." The challenge will be streamlining methods to use it effectively and intelligently.

Our faculty members also seek to harness the power of data to improve patient outcomes. Orthopaedic surgeon David Mitten directs the Health Lab, a collaboration

ing trends, which they may use to make important customer retention decisions.

The University is not alone among leading research universities and colleges in seeking to develop outstanding programs in data science. We are moving with the same focus and energy that we have brought to fields such as optics and photonics, and to programs such as the Eastman School of Music, and the Laboratory for Laser Energetics to create a platform in specific applications of this ubiquitous field where we can be best in class or among those best in class.

In a very real sense the opening of Wegmans Hall is not an end, but a major step forward in progress we anticipate making in data science throughout this century. Ⓡ