



# Navigator

SUMMER 2008

## GROWING IN THE RIGHT DIRECTION

BY JUDSON MEAD

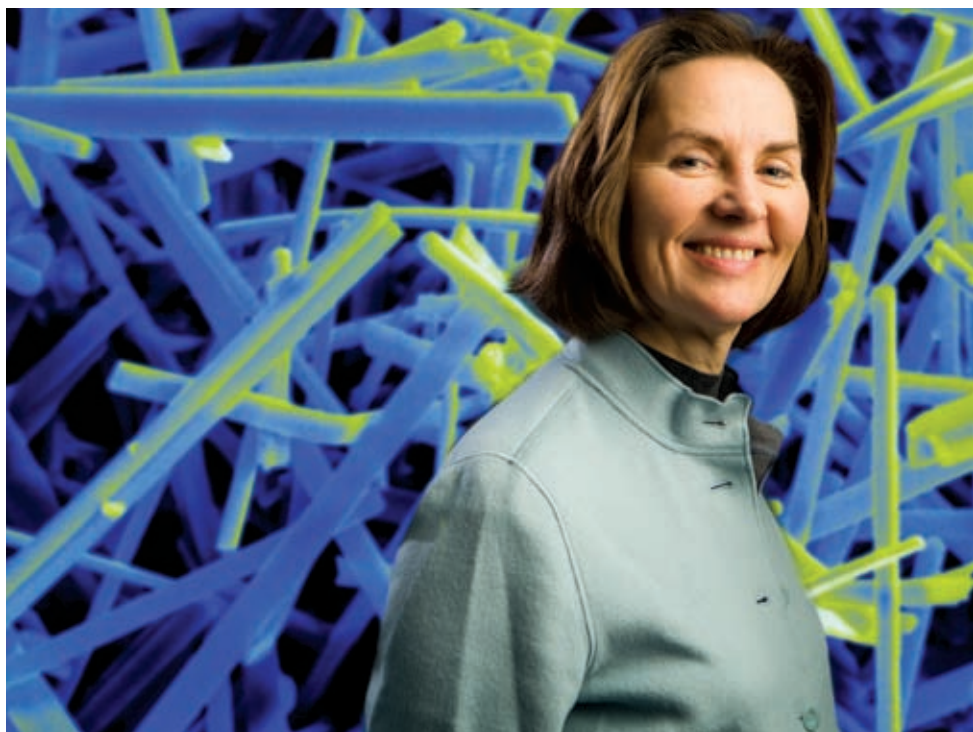
In the 2008 edition of U.S. News & World Report's Best Graduate Schools, UB's School of Engineering and Applied Sciences moved up from 61 to 52 on the list of top engineering schools. The arrows are pointing up for most of the school's degree programs as well, led by civil engineering and industrial engineering which now both rank in the top 30.

Dean Harvey Stenger attributes the rise to peaks of excellence that have attracted attention to the school.

He points to four: medical engineering, where faculty are working on projects that range from medical imaging to stem cells; structural engineering, with what he calls "a pinnacle of excellence" in the ability to understand how vibration affects structures; information fusion, which is a rapidly growing area in industrial engineering, with major funding from defense contracts to develop systems for decision making, typically in a battlefield environment; and finally imaging in biometrics, especially the ability to interpret biometric data rapidly.

"These are the ones that get the most visibility," according to Stenger. He names Venu Govindaraju in computer science and engineering, Moises Sudit in industrial and systems engineering, Michel Bruneau and André Filiatrault in civil engineering, and Stelios Andreadis in chemical and biological engineering as examples of faculty who run big programs that power the school's upward trend. In FY 2007, the school had total research expenditures of \$55.5 million.

But for Stenger, while the move up is encouraging, it doesn't capture what is happening in the school today. "We did it this year," he says about the



rankings. "What's going to do it three years from now? What's going to move us into the 40s?"

Stenger says the school is taking advantage of the opportunity to grow aggressively presented by the confluence of New York's Empire Innovation Program (EIP) funding, the prospect of a 30 percent increase in the school's available space from construction of a new building and the strategic initiatives in the UB 2020 planning process.

The EIP funds and other state and university funding made it possible for the school to recruit senior faculty to enhance programs that align with UB 2020

ESTHER TAKEUCHI, A MEMBER OF THE NATIONAL ACADEMY OF ENGINEERING, IS ONE OF THE HIGH-PROFILE FACULTY MEMBERS TO HAVE JOINED THE SCHOOL OF ENGINEERING AND APPLIED SCIENCES IN THE PAST THREE YEARS.

PHOTO: DOUGLAS LEVERE

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# engineering

initiatives in information and computing technology, nanotechnology and extreme

events, and to hire a member of the National Academy of Engineering with an unparalleled record of innovation in implantable batteries.

## A foundry for industry innovations

An example of UB's investment in new faculty is Chang Wen Chen, who was recruited to the Department of Computer Science and Engineering from the Florida Institute of Technology, where he was the Allen Henry Distinguished Professor. He is an expert in the field of compressing video and transmitting it efficiently through wireless networks, what Stenger calls "a very messy problem."

Stenger says that Chen is a valuable addition not only for his research, but also for his understanding of the realities that control the incorporation of innovations into industry standards. He recently received a best paper award from IEEE Transactions on Multimedia for "Joint Source-Channel-Authentication Resource Allocation for Multimedia over Wireless Networks."

In the area of nanotechnology, the school combined funds from EIP; the New York State Office of Science, Technology and Academic Research (NYSTAR); the Office of the Provost; and the College of Arts and Sciences, to establish a laboratory for Gottfried Strasser in the Department of Electrical Engineering. He holds a joint appointment in physics.

Strasser has pioneered both fundamental and applied nanotech advances in electronic and photonic devices. His new lab will, in effect, be an advanced technological "foundry" and a critical component for highly competitive nanotechnology research programs. Stenger credits the promise of UB's nanotechnology research initiatives for attracting Strasser to move his program—and his family, including two small children—from Austria to Buffalo.

## Exponential growth in expert faculty

In the field of extreme events, Stenger says that the school hired a senior-level researcher to fill a gap in transportation systems that became apparent when the area

was under study as a strategic academic initiative. Adel Sadek is an expert in intelligent transportation systems—such technologies as sensors and systems that can get road condition information to vehicles and drivers in real time. He will bolster the extreme events group with work on how to make transportation systems more resilient during disasters. Stenger says the school plans to add a junior faculty member in this area to work with Sadek.

The most prominent addition to the engineering faculty is Esther Takeuchi, a renowned inventor of tiny batteries that have helped make implantable cardiac pacemakers, defibrillators and other medical devices. Takeuchi left her position as chief scientist at Greatbatch Inc. to join the departments of chemical and biological engineering and electrical engineering. She was named to the National Academy of Engineering in 2004 and holds 134 U.S. patents. She brought a grant of \$500,000 from Greatbatch to help establish her laboratory at UB and has written more than \$4 million in proposals since arriving less than a year ago.

Takeuchi's arrival comes almost 50 years after Wilson Greatbatch and UB medical faculty pioneered the battery-operated cardiac pacemaker in humans.

"If you grow by one or two faculty a year, that's big," Stenger says. "But we've actually grown by seven this year, and 21 faculty over the past three years." He jokingly says that when newly hired faculty members want to see their offices, he asks them to wait in their cars until he can find one.

A new, 130,000-square-foot building to house the departments of computer science and engineering and electrical engineering, located between Ketter Hall and Furnas and Jarvis halls, will relieve the office crunch and free the space the departments vacate. Stenger says that the building is in a detailed design phase and he expects bid documents to be ready by spring 2009 with construction set to begin later that year.

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—Harvey Stenger, dean of the School of Engineering and Applied Sciences



## RESEARCH Navigator

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**Jorge V. José, Ph.D.**  
VICE PRESIDENT FOR RESEARCH

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**Celine Tan**  
DESIGNER

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