2011 HIGHLIGHTS *(CONT.)*

COMPUTER SCIENCE TAKES ON DEEP THINKERS

Answer: What Is Watson? This IBM computer soundly defeated big-time *Jeopardy!* champions in a widely watched prime-time showdown. But Watson won't power down now; the UMass Amherst scientists behind the famous computer have other tasks in mind. "Our goal is to push this well beyond *Jeopardy!*" says Eric Brown '96PhD, the IBM research manager who helped develop Watson. "We're thinking about the real-world business applications where we can take the technology behind Watson." Applying the technology to improve health care by helping medical practitioners evaluate data will be one of the first areas IBM explores, he explains. UMass computer scientist James Allen and his research team contributed information retrieval technology to the Watson project.

CENTER FOR CLINICAL AND TRANSLATIONAL SCIENCE

In July 2010, UMass Medical School received a five-year, $20-million grant from the National Institutes of Health (NIH) to support the recently established University of Massachusetts Center for Clinical and Translational Science (UMCCTS). With this award, UMass Medical School joined the national consortium of institutions charged by the NIH with accelerating the process of turning laboratory discoveries into health benefits for individuals and populations, and enhancing the training of a new generation of researchers. More than 90 UMass Amherst faculty members are affiliated with the center and 60 percent of all UMCCTS funding has been awarded to UMass Amherst/UMass Worcester collaborations.

DISCOVERY BOLSTERS FISH CONSERVATION EFFORTS

Environmental conservationist Andy Danylchuk and colleagues have discovered previously unknown spawning habits of bonefish that should help focus habitat conservation efforts for this favorite fish of sport fishers. Knowing that bonefish spend time outside shallow flats means that pre-spawning aggregation sites and deeper reef habitats also need to be protected to sustain bonefish populations. Danylchuk is familiar to many as a result of several appearances on the ESPN2 network series *Pirates of the Flats.* The research was supported by the Bonefish and Tarpon Trust, the Patagonia World Trout Initiative, the Cape Eleuthera Institute, and a number of private donors. The results appear in the journal *Marine Biology*.

ISENBERG TEAM PUBLISHES STUDY ON EFFICIENT POST-DISASTER SUPPLY CHAINS

Researchers in the Isenberg School of Management have released their findings on the optimal design of supply chain networks, intended to help improve the disaster relief capability and response time of companies, government-based groups, and humanitarian organizations around the globe. After a disaster or emergency, the needs of the affected population should be met as comprehensively and efficiently as possible to avoid loss of life and to contain costs. To address this concern, the team created a computer model that analyzes factors such as possible demand, cost, and the trade-offs associated with in-house production versus outsourcing, providing the data needed to develop the most efficient logistical solution possible. The team includes Anna Nagurney, the John F. Smith Memorial Professor of Operations Management, and Min Yu, a doctoral student in management science at the Isenberg School.
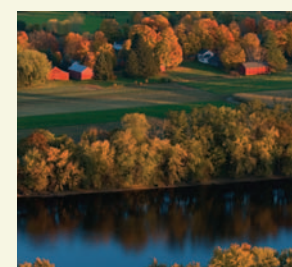
NSF GRANTS $360K FOR ENVIRONMENTAL JUSTICE RESEARCH

Economists James K. Boyce and Michael Ash have received a grant of $360,000 from the National Science Foundation to study Environmental Justice in the United States. Boyce, Ash, and colleagues at the University of Michigan and the University of Southern California will use a unique data set from the U.S. Environmental Protection Agency's Risk-Screening Environmental Indicators (RSEI) project to examine toxic pollution. According to Boyce, "The RSEI data give an extraordinary window into both who is on the receiving end of toxic industrial pollution in the U.S. and who is on the sending end. No other data permit this type of analysis. Our research will be useful to environmental justice scholars, community activists, and socially responsible managers and investors."

CONNECTICUT RIVER WATERSHED IS TESTBED FOR CLIMATE CHANGE EFFECTS

Casey Brown '94MS, civil and environmental engineering, is using the Connecticut River as a model for research on new ways to achieve ecologically sustainable water management while dealing with climate change. The work is funded through a five-year, $419,097 CAREER grant from the National Science Foundation. Brown explains that his work begins by recognizing that climate change means the historical records of water flows in the river basin, rain and snow amounts, and the impact of droughts and other weather events are no longer sufficient to accurately predict future events in the watershed. "The historical river is not a good representation of what the future river is going to be," Brown says.

SAFE DRIVING LAB NAMED FOR ARBELLA INSURANCE GROUP

Distracted driving results in an estimated 1.6 million crashes and 6,000 deaths in the U.S. each year. Thankfully, ongoing research at UMass Amherst is aimed at reducing those numbers. In recognition of its life-saving research on the dangers of distracted driving, the newly renamed Arbella Insurance Group Charitable Foundation Human Performance Laboratory in the College of Engineering has received a gift of $150,000 from Arbella Insurance Group. John Donohue, president, CEO and chairman of the Arbella Insurance Group says: "Distracted driving is becoming an epidemic in our country. We're proud to make this gift and to continue our strong partnership with UMass Amherst, in the hopes of changing behaviors behind the wheel. If we save even one life, we'll have made a difference."

MATH TUTORING SOFTWARE SUPPORTED BY GATES AND EDUCAUSE

Computer scientists Beverly Woolf '84PhD '90PhD, Ivon Arroyo '03PhD and colleagues have won a $250,000 award from EDUCAUSE and the Gates Foundation to support development of their mathematics fundamentals tutoring software. Called "Wayang Outpost," the software provides multimedia advice, animated characters, and new strategies for tackling challenging problems. It has been shown to improve student performance on standardized test scores by an average 10 percent, a critical difference for low-achieving and special needs students who often struggle to pass. Wayang Outpost is designed to improve students' early relationship with math, which can be important for later career choices, Woolf explains. The target audience is in high-enrollment, low-success, entry-level developmental mathematics courses in community colleges and public four-year schools.

PVLSI EXPANDS WITH NEW COLLABORATIONS AND FUNDING

The Pioneer Valley Life Science Institute (PVLSI), a joint venture of Baystate Medical Center and UMass Amherst, is expanding operations and collaborations for biomedical research and economic development. A $1.5 million gift from the Rays of Hope Walk Toward the Cure of Breast Cancer, will help establish a new center devoted to breast cancer research. A new collaboration with Seahorse Bioscience aims to foster shared research between PVLSI scientists and industry partners, accelerate commercialization of new products, and support regional economic development. "This agreement sets the stage for PVLSI scientists to leverage their intellectual discoveries into new products, fulfilling the institute's mission for translational research," said biology professor D. Joseph Jerry, PVLSI scientific director.

NIH AWARDS $2M FOR HEALTH PREVENTION AND TREATMENT TOOLS

Biostatistician Andrea Foulkes, public health, has received a five-year, $2 million grant from the National Institutes of Health to develop mathematical and statistical tools to improve prevention and treatment of cardiovascular disease and HIV/AIDS. Her work will organize genetic, immunologic, and demographic data to examine how best to predict clinical outcomes, such as in the case of heart disease. Discovering links among factors in order to identify potential patterns could improve clinical treatment options. "We're looking for predictive markers, a cluster of characteristics that, when they occur together, warrant a closer look. The ultimate goal is to use all these factors to help clinicians decide on the best treatment strategy. We're also trying to find ways to do this at lower cost," says Foulkes.