Driving big data

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MSU’s new Department of Computational Mathematics, Science and Engineering attracts national audience

Frontiers in Computing and Data Science, a two-day conference recently hosted by the newly created MSU Department of Computational Mathematics, Science and Engineering, drew 115 individuals from universities, national labs and industries across the country.

Held at the Kellogg Hotel and Conference Center on the MSU campus, attendees at the Sept. 16-17 conference included academic and industry leaders from the Air Force Office of Scientific Research (AFOSR), Brown University, IBM, Microsoft, the U.S. Department of Energy and others, as well as a number of graduate students and postdocs.

“Computation is one of the fastest growing fields of science,” said Jean-Luc Cambier, AFOSR program officer. “It’s very important to have this kind of synergy between the various computational disciplines.”

“The reality is, computational science and engineering has become its own discipline. It lives at the intersection of multiple traditional disciplines,” said Jeff Hittinger, computational scientist and group leader in the Center for Applied Scientific Computing at Lawrence Livermore National Laboratory.

“MSU’s new Department of Computational Mathematics, Science and Engineering (CMSE) is leading the way by developing a range of cross-training programs, from minors to PhD programs, aimed at developing the workforce of the 21st century,” said Andrew Christlieb, MSU Foundation Professor and CMSE chair. “CMSE is at the nexus of a major revolution in the physical, biological and engineering sciences. The faculty in CMSE are developing cutting-edge methods in both computational modeling and data science, and new methods in data driven discovery that combine key ideas from both. These ideas will change how science is done here at MSU, as well as around the world.

“This inaugural conference provided an amazing opportunity to bring global leaders in computing and data science to MSU and highlight the critically important areas that CMSE is focusing on,” Christlieb added. “We’re looking forward to hosting similar events in the future.”

“We, in industry, have been driving this push toward getting universities to bring disciplines such as statistics, mathematics, computer science and engineering closer together so that the students who are coming out of these programs will be more readily trained and available for working on the kinds of problems we are tackling in industry,” said Chid Apte, director of mathematical sciences and analytics in the IBM Research Division at the Thomas J. Watson Research Center.
“I think it’s fascinating that MSU is building a department and incorporating all these components,” said Bjorn Engquist, director of the ICES Center for Numerical Analysis at the University of Texas at Austin.

Also in attendance at the conference was postdoc Brian Danielak, who has joined MSU’s CMSE department to help design the introductory computational modeling course.

“Joining this new department gives me an opportunity to make a difference in learning, and to be able to work with people who are at the edge of what’s happening computationally,” Danielak said. “Getting a chance to be here at the forefront of what’s happening in modeling, how we’re thinking about large-scale computation, really is exciting to me. We’re trying to think about how to introduce people with no programming experience to this field.

“This conference gives me an idea of what it’s like when professionals in this field talk to each other, so that I can see how we can bring those things into the classroom for people who are doing this for the first time—and show them why this is exciting, and what’s possible,” he added.

The MSU Department of Computational Mathematics, Science and Engineering was established in April and is jointly administered by the Colleges of Natural Science and Engineering. CMSE is intended to position MSU as a world leader in scientific discovery through large scale computation. “We’re really looking forward to the students who will be coming out of this new MSU program,” Hittinger said. “We’re also looking forward to having partners in the academic community to interact and collaborate with.”

Story courtesy of the College of Natural Science

Related Website: MSU Department of Computational Mathematics, Science and Engineering
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