May 20, 2020

ITEM 188-1504-R0520

Authorization to Confer the Title of Professor Emeritus of Computer Science on Jeffrey Braun - Montana Technological University

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THAT

Upon the occasion of the retirement of Jeffrey Braun from the faculty of Montana Tech, the Board of Regents wishes to express its appreciation for his service to the Montana Tech, the Montana University System, and the people of the State of Montana.

EXPLANATION

Jeff Braun grew up in Colorado and studied Geophysical Engineering at the Colorado School of Mines because it combined his two main interests – geology and computers – where he earned his Bachelor's Degree in 1986. After earning his Master's Degree in Geophysics at the University of Utah in 1989, he spent over five years working in the petroleum industry in California and Louisiana. In 1995, he returned to the Rocky Mountain region and began work on a second Master's Degree, this time in Computer Science at the University of Montana. He received his Master's in Computer Science in 1998, started working at Montana Tech in 1998 as a Research Associate and began teaching computer science full time in 2001. Jeff became a tenure track faculty member of the Computer Science Department in 2002.

Jeff's research interests include scientific data visualization, high performance computing, data structures, algorithms, and systems. In 2001, shortly after starting at Tech and after development work on the OpendDX Software, he co-authored a user manual / text on the software, *OpenDX: Paths to Visualization*, with David Thompson and Ray Ford. OpenDX allows 3D visualization of complex domains such as mechanical gears or the human brain.

Jeff worked on the set up and operation of the Rocky Mountain Supercomputing Center and was the principle investigator on the Governor's Office of Economic Development Supercomputing Study, starting in 2009. From that, in 2012 he and David Hobbs established the High Performance Computing Cluster at Montana Tech, a 20-node computing cluster with 25 TB of storage. This high performance system is used by researchers across the MUS system, and Jeff supervised Bowen Deng, the application scientist who assists researchers in utilizing the computing facilities. Jeff was also instrumental in setting up the Visualization Wall which allows users virtual reality interaction with stereoscopic images.

When Jeff volunteered to become the department's representative for the MUS Transferability Initiative, he helped in standardizing our course offerings and numbers with institutions across the state. He is still the go-to expert for course equivalence issues.

Jeff took over as Department Head of the Computer Science Department in fall 2011, and continued to serve in that capacity until fall of 2015. During his time as department head, the CS Department saw much growth as a result of his leadership. When Greg Gianforte announced the CodeMontana program, Jeff worked with then Chancellor Don Blackketter on setting up the CodeMontana scholarship at Montana Tech. As a result, department faculty came up with a proposal for the Gianforte Family Foundation to fund an outreach position for the department, which was funded, and has been successful in increasing enrollment in the department.

Also during his time as department head, Jeff worked with Rick Rossi of the Statistics Program to develop the Data Science Bachelor's Degree Program. Together they created a curriculum that then received Board of Regent approval and went into effect in the fall semester of 2016. The department had its first graduates from the Data Science program in the spring of 2019. The Data Science program has shown steady growth from its inception, and now also includes a minor.

Working with then dean Doug Coe and Phil Curtiss, now a member of the Computer Science faculty, Jeff also helped develop the curriculum for the Computational Science Programs, both the minor and the graduate certificate.

Jeff's teaching interests have always been in the areas of data structures, algorithms, and system courses, such as computer architecture. He has also taken over the computational thinking course and introduced android application development to help teach the concepts. With Michele Van Dyne, he published a paper at the ACM conference for the Special Interest Group in Computer Science Education (SIGCSE) showing statistically significant improvement on the Whimbey Analytical Skills Inventory (WASI) test by students before and after taking the course.

Starting in March 2015, Jeff became involved with the Air Force Research Lab (ARL) database called DARLA. This is a 5-year multi-departmental project with an additive manufacturing task. He has been able to employ multiple students on this effort over the duration of the project.

Jeff has also successfully worked on the CS10K grant with Montana State University, the University of Montana, and Salish Kootenai College. The planning grant was funded in 2015, and the funding was granted for 2016-2019. The purpose of the grant was to have university faculty instruct high school teachers in teaching computer science. The grant funding ended last year, but was extended through 2021 by the Gianforte Family Foundation.

Jeff enjoys living in Butte because it offers fantastic recreational opportunities, including skiing, mountain biking, hiking, and trail running. He was the Ski and Snowboard Club advisor and the instructor for Montana Tech's Downhill Skiing and Snowboarding class that meets at Discovery Ski Areas. He has hiked the Continental Divide Trail (CDT) from Canada through Colorado. Jeff is a member of and assists the Continental Divide Trail Society (CDTS). In 2008, he became involved with Butte's P&M Runners, which organizes the annual Wulfman's CDT 14K trail race.

For these and other contributions, the Board of Regents of Higher Education is pleased to confer upon Jeffrey Braun the rank of Professor Emeritus of Computer Science at Montana Tech together with all the rights, privileges, and honors thereto appertaining.

ATTACHMENTS

None