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CONGRATULATIONS FELLOW

RUSS MILLER, Ph.D.

Congratulations to Russ Miller

Please join the Buffalo Section in congratulating Dr. Miller, who has recently been elevated to the position of IEEE Fellow for contributions to the theory and practice of parallel algorithms and architectures. Russ Miller is a UB Distinguished Professor in the Department of Computer Science and Engineering at the SUNY-Buffalo, senior scientist at the Hauptman-Woodward Medical Research Institute, and adjunct professor in the departments of Structural Biology and Electrical Engineering at SUNY-Buffalo.

Dr. Miller and his colleagues have made significant contributions in areas that include parallel algorithms, parallel architectures, grid computing, and molecular structure determination. He is best known for seminal work in the area of parallel algorithms to solve problems involving fundamental data movement operations, computational geometry, image analysis, and graph theory on a wide variety of fine-grained parallel architectures, some of which he designed and are being used in production today.

In addition, Miller and colleagues at the Hauptman-Woodward Institute have made contributions in the area of computational science and engineering that led to the design, analysis, implementation, and deployment of a computer program called Shake-and-Bake. This program has significantly increased the size of molecular structures routinely amenable to direct methods by orders of magnitude and has been shown to be applicable to much larger proteins. It has been used to solve a wide range of important structures including vancomycin, the antibiotic of last resort. This project has had significant world—wide impact on our society.

Miller's scientific publications number approximately 200, including scientific peer-reviewed papers, chapters, and abstracts of presentations at national or international conferences. In addition, Dr. Miller has co-authored two textbooks covering parallel and sequential algorithms. Prof. Miller serves on numerous conference program committees, does extensive reviewing for journals and funding agencies, including the NSF supercomputing initiatives, and serves as a member of the editorial board of Parallel Processing Letters and the International Journal of Teaching and Case Studies.

Dr. Miller founded the Center for Computational Research (CCR) at SUNY-Buffalo, where he served as Director from 1998-2006. During his tenure, CCR was continuously ranked as one of the leading supercomputing centers worldwide and served as a magnet to attract and retain high-quality faculty, staff, and students to Western New York. On an annual basis, CCR typically supported 140 projects covering nearly 40 academic departments at SUNY-Buffalo. However, CCR also supported projects from a variety of local and national colleges,

universities, non-profit organizations, government agencies, and the private sector.

Miller was instrumental in the establishment of the $290M New York State Center of Excellence in Bioinformatics. In fact, in establishing the Center of Excellence in January of 2001, New York State Gov. George E. Pataki stated that "This Center [of Excellence in Bioinformatics] will, through the University of Buffalo's Center for Computational Research, create academic and industrial partnerships …" Including personal peer reviewed funding, appropriations, contracts, and additional funds that CCR enabled during his tenure as Director, Dr. Miller has helped bring in approximately $0.5 billion dollars to Western New York.

Miller was listed on HPC Wire's 2003 Top People and Organizations to Watch. The computational crystallographic algorithm Shake-and-Bake, which is co-authored by Dr. Miller, was listed on the IEEE poster "Top 10 Algorithms of the 20th Century". Miller was elected to the European Academy of Sciences (Computer Science) in 2002 with the citation "for an outstanding and lasting contribution to parallel algorithms and computer science education" and was presented with International Scientist of the Year, Cambridge, England, in 2003.

For additional information on Professor Miller, please refer to his web site at www.cse.buffalo.edu/faculty/miller.

The IEEE Grade of Fellow is conferred by the IEEE Board of Directors upon a person with an outstanding record of accomplishments in any of the IEEE fields of interest. The total number selected in any one year cannot exceed one-tenth of one- percent of the total voting membership. IEEE Fellow is the highest grade of membership and is recognized by the technical community as a prestigious honor and an important career achievement. Approximately 350 individuals have been elevated to IEEE Fellow for 2012.

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