



## Public Affairs

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### **UNM Post-Doc receives Sloan Foundation fellowship**

University of New Mexico Post-Doctoral student Tiffani Williams has been awarded an Alfred P. Sloan Foundation Post-doctoral Fellowship in Computational Molecular Biology for two years. Twenty-six past Sloan Fellows have become Nobel Laureates.

Williams will work with School of Engineering Professors Bernard Moret, Computer Science, and David Bader, Electrical and Computer Engineering. She also taught one course in computer science at UNM this semester.

Williams' research is in the area of phylogenetic reconstruction, the inference of the evolutionary history of a collection of organisms. These relationships are graphically represented by as a phylogenetic tree, where modern organisms are placed at the leaves, ancestral organisms occupy internal nodes, and the edges of the tree denote the evolutionary relationships. Such reconstructions are based on molecular data such as DNA sequences collected from present-day species and on a hypothesized model of evolution. From a computational standpoint, phylogeny reconstruction is enormously expensive. Williams will use high-performance computers to increase the speed of existing phylogeny reconstruction algorithms.

"Basically my research will reconstruct evolutionary trees and find out how they all relate," Williams said. "I will look at different techniques that build these trees."

She said that the research will lead to the development of better drugs and products. Agricultural laboratories use phylogenetic research to produce better strains of basic foods such as rice or wheat. In addition, public health researchers use phylogenies to track the spread of various strains of the HIV virus (the cause of AIDS). Pharmaceutical companies use them to identify likely drug targets.

Williams received her Ph.D. in computer science from the University of Central Florida (UCF) and her bachelor's degree in computer science from Marquette University in Milwaukee, Wis. She was a instructor/visiting lecturer at UCF from 1996-2001. From 1995-96, she was an undergraduate advisor at UCF.

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