



A&T AWARDED \$2.5 MILLION FOR RESEARCH INTO 'EVOLUTION IN ACTION'

NEWS RELEASE

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The National Science Foundation has awarded North Carolina A&T State University \$2.5 million to support the school's role in a national consortium studying "Evolution in Action."

The program is referred to as BEACON, for Bio/computational Evolution in Action CONSortium. It focuses on joining evolutionary biology and high performance computing as a tool for modeling and analyzing the process of evolution as it changes both living organisms and artificial systems such as computer programs and networks.

"BEACON will expand our understanding of how evolution operates on systems both natural and artificial and how that process impacts our world," said Dr. Gerry Dozier, chair of the N.C. A&T Department of Computer Science and A&T's lead researcher on BEACON. "It will also enhance our ability to harness evolution as a powerful tool to solve complex problems in computer science and engineering."

The funding will be received over five years. The program will involve A&T faculty in five departments, as well as graduate students and undergraduate students.

Dozier said the objectives of the program are:

- To gain a better understanding of evolutionary dynamics through collaborative, interdisciplinary research between evolutionary theorists, evolutionary biologists, and evolutionary practitioners, such as engineers and computer scientists working in the field of genetic and evolutionary computing;
- To apply principles of evolution and computing to help solve real-world problems, ranging from the development of safer, more efficient cars to systems that detect computer intrusions; and
- To provide a vehicle to inform the public of how the dynamics of evolution impact the lives of everyday people.

While the program will focus on research, it will also include an educational component. A&T envisions undergraduate courses in such fields as evolutionary biology, which will examine organizations ranging from molecular to societal and evolutionary computation, which applies principles of evolution to complex issues such as computational biology, machine learning and robotics.

A&T is one of five universities involved in the program. Michigan State University is the consortium's leader; in addition to A&T, the other members are the University of Idaho, the University of Texas-Austin and University of Washington. Total funding for the program is \$25 million.

A&T's involvement will include researchers from departments in the College of Arts & Science, College of Engineering, the Division of University Studies, and Secure Designs Inc., a Greensboro-based Internet security firm:

- Biology – Goldie Byrd and Gregory Goines.
- Computer Science – Dozier, Albert Esterline and Anna Yu.

- Electrical and Computer Engineering – Marwan Bikdash, Abdollah Homaifar and Gary Lebby.
- Industrial and Systems Engineering – Paul Stanfield, department chairman.
- University Studies – Joseph Graves, Dean; Jessica Han; and Randall Hayes,
- Secure Designs, Inc. – Ron Culler

Dozier said these researchers will be working closely with one another at A&T and with researchers at the other partnering universities.

"It's really exciting to see the different departments in the university and the different universities doing collaborative work," he said.

The formal name of the program is "BEACON: A National Science Foundation Science & Technology Center for the Study of Evolution in Action."

The NSF Science & Technology Centers program is extremely competitive; there are currently only 12 active centers.

For more information contact David Arneke at (336) 334-7314 x4009 or darneke@ncat.edu. You can also visit the BEACON website: <http://www.beacon.msu.edu/summary.html>.

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