***The University of Alabama***
***Department of Computer Science***
***Colloquium Series Speaker***

**Dr. John Lusth**
**Department of Computer Science & Computer Engineering**
**University of Arkansas**

# Simplicity versus simplexity in language design

**Friday, November 4th**
**11:00 a.m., HO 108**

**Abstract:**
Simplexity is a term coined by Anders Hejlsberg, the designer of the C# programming language. It is a somewhat derogatory term for placing a simplified interface on a complex subsystem. This approach simply masks complexity and, in many ways, creates an even more complex system in total. A hallmark of a simple system, as opposed to a simplex system, is that, as you look past layers of abstraction, things get simpler, rather than more complex. Hejlsberg argues that complex systems should be replaced, as much as feasible, with simple systems designed to generate complex behaviors.

The Sway programming language is an attempt to build a language whose syntactic and semantic rule sets are small and easily explained, but in terms of expressibility, meet or exceed the expressiveness of industrial strength languages. The result is a language which is quite easy to learn but appears to grow along with the understanding of the student. After a few basic concepts are learned, students are capable of exploring a wide variety of paradigms, including procedural, object-oriented, functional, constraint-based, and stream-based programming. Moreover, a pleasant outgrowth of Sway's model is monoligualism: the debugging language is Sway itself, as is the macro language. All this combines to make Sway a gentle introduction to the art of programming.

**Dr. Lusth's Bio:**
Dr. John Lusth is an Associate Professor at the University of Arkansas. He began his career at a researcher at the Southwest Research Institute, exploring the practical uses of Artificial Intelligence. He continued this line of inquiry at the Becton Dickinson Research Center, focusing on medical applications of AI. While a PhD student at the University of Alabama, he became interested in computation via novel architectures, eventually winning an NSF Career grant to study the computational abilities of Quantum-dot Cellular Automata. In his first academic position at Boise State University, his teaching repertoire included both Algorithms and Programming Languages. His experiences in these courses led to the development of the Sway programming language, which was recently used in the Simulation of Computers course at the University of Arkansas. In the near future, Dr. Lusth will use Sway in a skills building course designed to boost retention of computer science students.