November 14, 2003

Dear Faculty Recruiting Committee Chair,

I am applying for the advertised position of tenure track assistant professor. I am a doctoral candidate in the Department of Computer Sciences at the University of Texas at Austin, expecting to complete my dissertation before Fall of 2004. My advisor is Prof. Risto Miikkulainen and my dissertation is titled *Efficient Evolution of Neural Networks through Complexification*.

A major challenge for Artificial Intelligence is to find solutions to complex real-world problems. Current methods generally perform well on simple, low-dimensional problems, but fail when the problem is nonlinear and high dimensional. My research aims to overcome this limitation; it is based on the insight that although directly searching for a solution in a high-dimensional space may not be feasible, it may be possible to start search in a simpler, related space, and gradually build up to the full complexity of the problem. This process of *complexification*, wherein small, simple solutions are incrementally elaborated until they fit the problem complexity, can potentially automate important learning tasks such as robot navigation, vehicle control, and factory optimization. I plan to pursue research in complexification towards the ultimate goal of an automatic generator of high-level complex solutions and controllers.

I have several years of teaching experience, including lecturing in undergraduate classes. I have also cosupervised (with Prof. Miikkulainen) several undergraduate research projects. I’m looking forward to an opportunity to teach at both the undergraduate and graduate levels, and to supervise graduate research.

My vitae (with references), research statement, teaching statement, and select publications are available at:

http://www.cs.utexas.edu/users/kstanley/application

Thank you for your consideration. I look forward to your response.

Yours sincerely,

Kenneth Stanley