Computer Science Department Presents

Learning Computer Administration By Demonstration

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12:30-1:30pm
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Room 381 - Computer Science Dept.

Abstract:

Personal computers and personalized computing environments have become an indispensable tool. They are also nightmare to administer and maintain for individuals and organizations. Expertise regarding how to perform various configuration or diagnostics procedures is scarce, costly, and valuable lore. I will present a programming by demonstration approach for automatically capturing procedures executed on the Windows desktop. Our approach recognizes common subsequences between multiple traces of the same procedure, and grafts these alternate paths onto a growing representation of the whole procedure. Sophisticated sequence alignment algorithms have been developed for aligning biological sequence data, among others. We have extended an HMM (hidden markov model) learning algorithm from this field for use in this task. Our extension is greatly increases the complexity of the model since we must also learn action and branch rules for each of our steps. The goal is to output a procedure represented as a graph of steps along with induced rules for action at each step. I will show preliminary results in this direction. This project was awarded three years of "adventurous research" funded at IBM. I will briefly discuss the nature, advantage, and constraints of research in an industry lab.