

Journal of Andrology, Vol 17, Issue 5 462-466, Copyright © 1996 by The American Society of Andrology

REVIEW

Computational tools for the modern andrologist

C. Niederberger

Department of Urology, University of Illinois at Chicago 60612, USA.

With such a wide array of computational tools to solve inference problems, andrologists and their mathematical or statistical collaborators face perhaps bewildering choices. It is tempting to criticize a method with which one is unfamiliar for its apparent complexity. Yet, many methods are quite elegant; neural computation uses nature's own best biological classifier, for example, and genetic algorithms apply rules of natural selection. Computer scientists will likely find no one single best inference engine to solve all classification problems. Rather, the modeler should choose the most appropriate computational tool based on the specific nature of a problem. If the problem can be separated into obvious components, a Markov chain may be useful. If the andrologist would like to encode a well-known clinical algorithm into the computer, the programmer may use an expert system. Once a modeler builds an inference engine, that engine is not truly useful until other andrologists use it to make inferences with their own data. Because a wide variety of computer hardware and software exists, it is a significant endeavor to translate, or "port," software designed and built on one machine to many other different computers. Fortunately, the World Wide Web offers a means by which computational tools may be made directly available to multiple users on many different systems, or "platforms." The World Wide Web refers to a standardization of information traffic on the global computer network, the Internet. The Internet is simply the linkage of many computers worldwide by computer operators who have chosen to allow other users access to their systems. Because many different types of computers exist, until recently only communication in very rudimentary form, such as text, or between select compatible machines, was available. Within the last half-decade, computer scientists and operators began to use standard means of communication between computers. Interpreters of these standard languages, such as Mosaic and Netscape, are now widely available, and they allow the casual user to access the most sophisticated multimedia aspects of computer information on a variety of different systems. Andrologists may thus use the World Wide Web to make inference engines that they have programmed available to other clinicians and researchers. For example, we programmed a World Wide Web interface to the neural networks that we trained in order to solve a number of andrology classification problems. Interested users connect to our address (at this writing <http://godot.urol.uic.edu>), and they may fill out electronic forms with their own patient data, press a "predict" button, and nearly immediately view the results of our neural networks' prediction on their own computers. With the explosion in computer hardware technology, mathematics and computer science that once seemed esoteric can now be investigated on

This Article

- ▶ [Full Text \(PDF\)](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me if a correction is posted](#)

Services

- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Alert me to new issues of the journal](#)
- ▶ [Download to citation manager](#)

Citing Articles

- ▶ [Citing Articles via Google Scholar](#)

Google Scholar

- ▶ [Articles by Niederberger, C.](#)
- ▶ [Search for Related Content](#)

PubMed

- ▶ [PubMed Citation](#)
- ▶ [Articles by Niederberger, C.](#)

computers available to nearly all andrologists. Rapid advances in computer network technology now render a tool developed by one andrologist immediately available to many. Clearly, andrologists may expect that computational investigations in their field will be a productive ground in the near and far future.

[HOME](#) [HELP](#) [FEEDBACK](#) [SUBSCRIPTIONS](#) [ARCHIVE](#) [SEARCH](#) [TABLE OF CONTENTS](#)

[Copyright © 1996 by The American Society of Andrology.](#)