

Adding Java and CGI Functionality to an On-Line Atlas of Anatomy for Medical Education

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The use of Java applications through applets, HTML facilities and CGI scripts provides useful interactivity to an on-line atlas of topographic anatomy via Internet, based on the Visible Human Project.

INTRODUCTION AND AIMS

Anatomical Atlases are an integral part of basic health sciences education. Recently, there has been an increased importance of sectional anatomy atlases due to the advancements of tomographic and to the difficulties to relate topographic anatomy to the tridimensional anatomy. Computer-based atlases have been increasingly useful for this purpose. Delivery via the Internet and World Wide Web has also been tried with success, such as in the Digital Anatomist¹. Interactivity may be achieved via HTML maps, CGI (Common Gateway Interface) scripting and embedded Java applications². Aiming to advance beyond the concept of atlas browsing and navigation mechanisms via WWW, it was used extensive client-side processing via JavaScript and applets and server-side processing via CGI programs. Our final goal was to produce an on-line resource truly useful to support asynchronous, distributed learning activities in anatomy, using the images available through the Visible Human Project³.

MATERIALS AND METHODS

The system is composed by frame-based home pages, compatible with HTML 3.0 standard, for Java-enabled browsers. Each page is subdivided into areas : menu frame, including navigation to the previous/next slice, and point-and-click slice selection; image tools as the Java applet control of brightness and contrast, local zoom control,

and switch between labelled and non-labelled slices; finally, an image display frame, and the text frame.

Another properties include hyperlinks to related URLs, email links to the authors, users annotations on text via applets, and on-line quizzes to improve the skill of the visitor.

RESULTS AND CONCLUSION

The implemented functions add full interactive, CD-ROM like functionality to an on-line atlas, with all the advantages provided by Internet (constant updating and maintenance). Additional functionality includes facilities for self-study, providing an adequate tool to support autonomous learning of sectional anatomy. The interface is user-friendly, requiring no training. Some predicted disadvantages are due to the speed of image downloading, and to the Internet-Java programming itself, which cuts bandwidth by removing server-side processing. Our future goals include the support for study of correlative anatomy using CT and MRI images, provided by the Visible Human Project³.

References

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