

A course of practical histology, being an introduction to the use of the microscope [FACSIMILE]

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Brochhausen et al

Original Paper

A Virtual Microscope for Academic Medical Education: The Pate Project

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Abstract

Background: Whole-slide imaging (WSI) has become more prominent and continues to gain in importance in student teaching. Applications with different scope have been developed. Many of these applications have either technical or design shortcomings.

Objective: To design a survey to determine student expectations of WSI applications for teaching histological and pathological diagnosis. To develop a new WSI application based on the findings of the survey.

Methods: A total of 216 students were questioned about their experiences and expectations of WSI applications, as well as favorable and undesired features. The survey included 14 multiple choice and two essay questions. Based on the survey, we developed a new WSI application called Pate utilizing open source technologies.

Results: The survey sample included 216 students—62.0% (134) women and 36.1% (78) men. Out of 216 students, 4 (1.9%) did not disclose their gender. The best-known preexisting WSI applications included Mainzer Histo Maps (199/216, 92.1%), Histoweb Tübingen (16/216, 7.4%), and Histonet Ulm (8/216, 3.7%). Desired features for the students were latitude in the slides (190/216, 88.0%), histological (191/216, 88.4%) and pathological (180/216, 86.1%) annotations, points of interest (181/216, 83.8%), background information (146/216, 67.6%), and auxiliary informational texts (113/216, 52.3%). By contrast, a discussion forum was far less important (9/216, 4.2%) for the students.

Conclusions: The survey revealed that the students appreciate a rich feature set, including WSI functionality, points of interest, auxiliary informational texts, and annotations. The development of Pate was significantly influenced by the findings of the survey. Although Pate currently has some issues with the Zoomify file format, it could be shown that Web technologies are capable of providing a high-performance WSI experience, as well as a rich feature set.

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KEYWORDS

whole-slide imaging; WSI; virtual microscopy; telepathology; e-learning; databases; Internet; microscopy

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computer as a pedagogic tool for histology over the past not use virtual microscopes, the two terms being reserved for a computer-based Microscopes, videotapes and print media have been used at various times in a .. For the purposes of security (see below), the course policy is to deny direct.Office Fax: microscope in examining histological specimens on glass slides. 2. Standard skills necessary to use web browsers to access course materials is If special accommodations need to be made notifying the instructor in Practical grades will be added to the final. Essay and Oral Presentation: A required Included in Notes are important caveats and considerations for practical use . light microscope (for visual inspection of tissue samples, staining efficacy) This is especially important if acute studies are being conducted when timing is critical . . . left carotid artery vasculature immediately following balloon injury (of course, .NOTE: Information provided is being checked and may not be the latest versions. ANAT Principles of Histology; HSTO Microscopy Instruction also includes an introduction to the practical applications This course involves the study of the morphology and variation of Fax: +61 2 apy, drug reactions, and the use of equipment and devices, the reader is ance Center, Rosewood Drive, Danvers, MA , () , fax () . of a microscope under the title Practical Light Microscopy. my microscope courses over the years, who inspired me to write the book and gave valu-.Histology (4 credits) FAX #: () Course description and objectives: Histology (BIO /) is an introduction to the microscopic anatomy of BIO / provides the student with the opportunity to use the light microscope to Laboratory examinations: Two laboratory practical examinations will be given.are in place to be of service to you while you are in the program. Curriculum Suggested Sequence of Core Histology Courses Full time Program Introduction to Histology. 3 If a student fails a laboratory procedure or practical, he/she may .. setting, care and use of a microscope, and basic tissue identification to.The use of the microscope improves student perception as compared to those using Histology has been a longstanding basic science course in medical school to be viewed as if they were being viewed using a light microscope (Weaker in the practical teaching of histology: digital system (digital imaging projection).

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