



## eSlide: An open source, multi platform system for digital microscopy

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### Abstract

**Introduction:** The present paper describes the design and implementation of a system for acquisition and visualization of digital slides. The system consists of software modules that manage external devices (robotic microscope, auto-focus system and acquisition board), and a viewer.

**Methods:** Digital slide construction is performed in three phases: i) acquisition of the entire tissue at selected magnification (acquisition objective), ii) digital construction of lower magnification images, and iii) provision of the digital slide with clinical and technical data to be accompanied with, inside a RDF file. The eSlide acquisition module implements an home-made software autofocus algorithm, which includes some routines to ensure focus is not lost during the unsupervised acquisition process.

**Results:** At present, the acquisition module can be run on Windows (various versions) as well as Mac OSX. Acquisition devices for which a module has been developed include the Scion Firewire cameras series, and cameras for which a standard driver is available (WDM on Windows, Quicktime on Mac OSX). For the Linux version, the development of a module is ongoing for Video4Linux devices.

The viewer runs on any platform able to run Java v.1.5, including Windows, Mac OSX and Linux. The system is also well optimised for large image visualization, as it has been tested on a 30" monitor, with 2560x1600 pixels of resolution.

The overall system has been made available as open source in a first version in 2006, then a 2.0 release, with enhanced features, is being released in these days.

At present, the system is being used for the production of the educational "Cases of the month" at the University of Udine, meant at residents in Pathology as well as pathologists needing continuing education. Such cases are available at the address <http://anpat.drmm.uniud.it/>.

**Conclusion:** All software and documentation can be found on the project web site: <http://www.eslide.net>, together with slide samples.