Graphics and Media support at Oxford Brookes University

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Abstract – **The paper will introduce graphics and multi-media teaching at OBU. The university's main computing facilities are presented and its limitations for specific graphics applications discussed. Finally, we take a look at the latest developments in graphics support for teaching and research.**

Keywords – **Teaching of graphics and multimedia, Graphics Workshop.**

I. Graphics Oriented Courses

Graphics and multimedia are taught at Oxford Brookes University in many departments and in a wide range of subjects.

We can generalize that graphics are taught on two types of courses, where graphics are either:

- part of a graphics-oriented course,
- the principal subject of a course.

By graphics-oriented courses we mean courses for which graphics are not the main goal of the course, but are extensively used during that course. For example, on the Geographical Information Systems course, graphics are heavily used for the presentation of analysis results, but are considered purely as a tool. A similar approach to graphics is employed for Mapping and Cartography, Urban Design, and other courses [1].

Graphics as a subject in its own right is taught in a few departments, e.g. in the Departments of Computing, Engineering and Architecture. In the Computing Department, graphics programming and multimedia are taught as the main subject - multimedia is also part of a MSC postgraduate course. The Department of Engineering runs Media Technology and CAD Engineering courses, where there is a more technical and user-centered approach to graphics. In the Department of Architecture, there is extensive use of graphics for design and visualization, but computer graphics are taught and used as a tool for getting the job done.

II. Computing Facilities

The university's computing facilities have evolved greatly in the past ten years. Initially systems were based on supermini and graphics terminals, then a number of CAD/graphics systems were introduced, based on UNIX workstations supplied by Apollo, DEC, HP and Sun Microsystems. But as the power and functionality of PC stations improved, and at the same time more graphics and CAD packages were implemented for the Windows OS, a large PC network was set-up and most of the Unix systems were withdrawn from service.

There are currently 690 PCs on the network, available in 33 open-access rooms, spread across three university campuses. These rooms, called pooled computer rooms, are centrally funded and run by Computer Services [3].

In addition there is a central UNIX system, accessible from PC stations via x-terminal emulation clients, and a specialized room for Geographical Information Systems. A few departments do run their own systems, but on a much smaller scale.

As far as software is concerned, initially many graphics applications were written in-house and were based on graphics libraries like GHOST, NAG and UNIRAS. The current graphics applications are mainly based on commercially available software from all leading suppliers. There are packages for CAD applications, drawing, presentation graphics, multimedia, desktop publishing and also graphics libraries.

III. Specialized Graphics Support

The general computer network, is not however suitable for more sophisticated graphics applications and other requirements. For example:

- packages for solid modeling, rendering and image processing need to be run on specialized graphics stations,
- packages for digital video processing and multimedia applications do require some additional equipment,
- specific graphics packages do not work properly on networked stations and need to be installed locally.

In addition, the complexity of recent packages means that help needs to be provided even for advanced users. In the case of students from departments where there is no formal graphics teaching, some sort of introduction and supervision is necessary.

We therefore we came to the conclusion that a graphics resource, separate from the general network, with suitable equipment and software, and available for the whole university, should be created.

IV. Graphics Workshop

The Graphics Workshop is intended mainly for those cases where graphics projects can not be completed in the university pooled rooms for reasons explained above. It is also aimed at students and staff from departments where there is a

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lack of graphics facilities and specialized support. In particular, students with research projects and final course projects are encouraged to use the facilities.

Currently the Graphics Workshop can offer services and facilities in the following areas:

- digital video editing
- CAD drawing and rendering 3D graphics for modelling and simulation
- creative graphics and desktop publishing
- multimedia and presentation graphics
- image storage and editing
- CD/DVD writing and authoring.

Present hardware is based on SGI workstations, Apple Macintosh G4 and PCs. In addition, there is equipment for video capture, a high quality flat bed A3 scanner and scanners for 35mm film and transparencies, a digital camera and digital camcorder. Access is provided to colour photo-quality and large format printers. More detailed information can be found on the Workshop web-site [2].

Similar facilities are only available at two other UK universities, i.e. at Manchester University and at Edinburgh University.

V. Conclusion

Since opening just over two years ago, the Graphics Workshop has proved to be a very successful and popular resource.

The majority of students using the workshop come from the Schools of Architecture, Arts, Humanities and Technology. There is also a significant number of students from schools that are not normally associated with computer graphics, such as the Schools of Healthcare and Business.

As far as usage is concerned, a short session typically lasts few hours, but longer projects may take several weeks or more to complete.

The most popular types of sessions are: video editing, preparation of presentation graphics and multimedia, desktop publishing and the rendering of architectural projects. As far as equipment is concerned, the scanners and digital cameras are heavily used.

Looking ahead, as well as keeping the Graphics Workshop technologically up-to-date, we plan to extend and develop its pedagogical provision. The most likely initiatives will be:

- the preparation of materials for a university-wide streaming media service,
- the introduction of further training sessions to include rendering, animation and 3D modelling.

References

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