

AUDF Development Grant Application Form

Project Title:

(less than 10 words please)

StickiesAV: Shared video annotation on MacOSX

Principal Developer:

(the person to be contacted for further information)

Ian MacColl

Applicants Details:

Title:	Mr	Mr	Mr
First Name:	Ian	Matthew	Jamie
Last Name:	MacColl	Simpson	Madden
University:	University of Queensland	University of Queensland	University of Queensland
Faculty/School/ Dept:	School of IT&EE	School of IT&EE	School of IT&EE
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Macintosh Development Experience:

(what Macintosh applications have you developed, using which development tools)

<p>MacColl</p> <ul style="list-style-type: none"> • C++, Java, Python, WWW, OpenGL, SQL and QuickTime experience • Ported Bamboo and EQUIP to OSX • Built QuickTime ethnographic analysis tool • Mac OS X Access Grid project 	<p>Simpson</p> <ul style="list-style-type: none"> • WWW, PHP, QTSS, QuickTime experience • Collaborative whiteboard/3D model-viewing Software in Java 	<p>Madden</p> <ul style="list-style-type: none"> • C++, Java, Python, J2ME, SQL • Active PostgreSQL User • Developed multimedia repository on Mac OS X for Australian Creative Resources Archive (ACRA)
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Project Description:

Be comprehensive, but **do not use more than 250 words** for the basic description. The selection panel will not consider lengthy applications. Please be sure to also address each of the selection criteria below. Do not include your research and publication history.

The aim of this project is to integrate and extend existing Mac OS X and open-source tools to support distributed video annotation. *StickiesAV* will be a WWW-based system for creating, maintaining and sharing annotated bookmarks on streamed multimedia content, such as video. It arises from needs identified in our own work for tools to support collaborative analysis of ethnographic fieldwork and design video data, and for tools to support creation of a repository of annotated video tutorials for various software packages to be used by our undergraduate students.

This project will combine the Mac OS X UNIX foundation with the media creation, delivery and playback capabilities of QuickTime. It will use the Apache HTTP server, QuickTime Streaming Server (QTSS), PostgreSQL open-source database and various standards, such as Outline Processor Markup Language (OPML), Synchronized Multimedia Integration Language (SMIL), H.264, MPEG-4 and 3GPP. The user interface will use Asynchronous JavaScript and XML (AJAX) to provide a rich, responsive browser-based user experience.

Educational Relevance

Preference is given to projects that have broad educational applicability. For example, computer laboratory administration software could find application at many universities and other educational institutions.

This project has broad educational applicability to both teaching and research. Rich media, such as video, is increasingly used in teaching, and this project provides a general mechanism for annotating such media. This enables

students to individually annotate captured lecture presentations, for example. Similarly, video and integrated multimedia is often used to capture research sessions for later analysis, and *StickiesAV* enables researchers to collaboratively annotate such resources.

Developer Commitment

Because time-to-market is important, preference is given to projects that are appropriately staffed. In general, it is unlikely that support will be given to major undertakings that are allocated only a small percentage of a single developer's time.

This project involves three developers with substantial server administration, programming and WWW development experience. We also plan to offer this project for Masters and Honours thesis topics in 2006.

University Support

The commitment of the nominating institution to support a project is important. Individuals often have great ideas, but without adequate commitment from the developer's department or faculty, progress may be slow or sporadic. Detail the extent to which your university is prepared to support the project.

The University has previously supported several AUDF projects, and will support this project by providing:

- server IT support and machine room space (including UPS, network, backup, and so on)
- client devices for testing, such as desktops, laptops and mobile phones
- developer laptops
- project development office space and gigabit network to the desktop
- opportunity for student projects throughout development with a substantial student pool for user testing

Our Head of School is overseas so a letter of support will follow on his return.

Defined Deliverables

The AUDF has been established to produce real products. It is not designed to support pure research. Applications should define what the results of the project will be, when they will be completed, and how they will be made available to interested users. Specifically, you should identify who owns the results of your work, and the proposed licensing and distribution arrangements.

The result of this project, *StickiesAV*, will be a WWW-based service for creating, maintaining and sharing annotated bookmarks on streamed media. The system will use QuickTime Streaming Server for content, PostgreSQL for metadata, and Asynchronous JavaScript and XML for responsive user interaction.

StickiesAV will be owned by The University of Queensland (since MacColl and Simpson are employees) and Madden (as a UQ MPhil student). It will be licensed under the BSD open-source license and will be available from a School WWW page (and the AUC site if desired).

Novelty

New ideas are strongly encouraged. The AUDF is intended to foster these ideas. Projects that take advantage of, and enhance the value of uniquely Apple technologies such as QuickTime, AppleScript and Java tools for the Macintosh will be given high priority. Projects that focus on Firewire, USB, AltiVec, Airport, Bluetooth and Rendezvous technologies will be important to Apple. Projects are preferred where they will produce a piece of software or hardware that does not replicate an existing solution.

This project is novel in:

- integrating and demonstrating the UNIX foundation of Mac OS X with QuickTime media capabilities
- using Asynchronous JavaScript and XML (AJAX) for user interaction with rich media
- providing a freely available tool for creating and sharing annotated bookmarks on rich media

Export Potential

Apple Computer has entered into a Partnership for Development with the Australian Government which commits Apple to support R&D which has the potential to earn export revenue for Australia. You should identify the likely export markets for your product, if there is one.

Likely export markets for *StickiesAV* include education and any industry using rich media data, such as video, for production or analysis

Research Potential

Does this project have any potential for inclusion in the DEST Higher Education Research Data Collection (HERDC)?

Yes, as research and experimental development into applications software (classification G1)

Development Schedule:

In this section, you are making a commitment to complete your project on time. You should include major project milestones, such as when the software will be available for demonstration, user testing and shipment. The exact nature and timing of such milestones is dependent upon the nature of the project, however you must provide some indication of at least one major milestone. Periodic reviews will be conducted, to ensure that you remain on track. Continued support is contingent on meeting milestones. An unsatisfactory review may result in withdrawal of support.

• Commencement Date:	January 2006
• Milestone 1 Description and Date:	June 2006 – Setup Server and services deployed and tested Existing tools and systems evaluated Candidate WWW development frameworks evaluated Requirements defined as use cases
• Milestone 2 Description and Date:	December 2006 - Initial release Progress report Core functionality and user interface developed Preliminary documentation and tutorials
• Milestone 3 Description and Date:	June 2007 – Revised release Evaluated via use in undergraduate interaction design course
• Completion Date:	December 2007 – Project completed Final report <i>StickiesAV</i> revised and released Final documentation and tutorials

Progress to Date:

If your project has commenced, please define its status.

Not applicable – the project has not commenced

Resources Available for this Project:

In this section, you are identifying and quantifying resources that you have at your disposal to work on your project. Do not list equipment unless it is available on a full-time, dedicated basis. Do not list staff unless they are available at least 20% of the time. **Quantify their availability.**

Personnel

MacColl, Simpson and Madden will each allocate 20% EFT to this project

Hardware/Software

- UQ-hardware – laptops, desktops and phones
- Apple development tools, QTSS
- Open-source software, particularly PostgreSQL

Research Grants and Other Support Obtained/Pending

Not applicable – no other grants or support have been sought

Resources Requested for this Project:

Identify and quantify resources that you would like the Apple University Development Fund to provide. Please be realistic. It is unwise to ask for equipment which is known to be in short supply, or which is blatantly in excess of reasonable requirements. **Ensure that firm quotations are provided for all third party equipment.**

We request that the AUDF provide:

- an Xserve G5 with upgraded disks and RAM to support video storage and manipulation
- Apple Developer Connection Select membership

Apple Hardware/Software:

Provide product codes for all Apple items. Justify each item.

- Xserve G5 2.3GHz dual (\$5359 ex-GST) with unlimited Mac OS X Server
- upgrade to 4GB RAM (\$1513/\$1947 ex-GST)
- upgrade to 3 x 500GB 7200RPM (\$2360 ex-GST) with two disks configured as RAID 0 or RAID 1
- AppleCare Premium Service and Support (\$1087 ex-GST)
- Apple Developer Connection (ADC) Select membership (US\$500)

An Xserve is requested to support development and testing by multiple developers. The dual processor model is requested due to the requirement for video processing, which is also the reason for upgraded RAM and disk storage. ADC Select membership is requested to provide timely access to development resources and support.

Third Party Hardware/Software (must include quotes):

Provide firm quotations for all third party items. Justify each item.

Not applicable – no third party hardware or software is required

Other Support:

e.g. programming support. Please note that such support is allocated on a lower priority.

Not applicable – no other support is requested

Please give details of existing work by others, including commercial products. What makes your project unique?

There are a number of related projects, including:

- QT Easy Annotations – provides local annotations but not bookmarks
http://www.egeonline.com/qtea/qtea_en.php
- Annodex/CMWeb – non-standard (e.g., only Ogg-format media) and does not run on Mac OS X
<http://www.annodex.net>
- Vannotea – collaborative, synchronous annotations but only MPEG-2 and requires Annotea browser
<http://metadata.net/filmed/>
- Proximity Artbox (and other asset management tools) – multimedia asset management but not bookmarks
http://www.proximitygroup.com/page.php?pg=products_artbox

The *StickiesAV* product is unique in combining:

- integration of media asset management with annotated bookmarks
- industrial-strength multi-format streaming via QuickTime Streaming Server
- powerful, open-source PostgreSQL database for metadata
- responsive WWW-based interaction via Asynchronous JavaScript and XML (AJAX)

How will your project promote the Macintosh in Education?

Describe briefly why your project would make the Macintosh a more compelling solution in Education.

StickiesAV promotes Macintosh in education by:

- showcasing integration of Apple and open-source technologies
- featuring unique strengths of Mac OS X, such as UNIX foundation with QuickTime media capabilities
- demonstrating use of Mac OS X for educational WWW (via Apache, QTSS, AJAX, Safari)

How will you make the product available to other AUC members?

Describe briefly the intended distribution arrangements. The AUC has a strong preference for projects with a commitment to share results on a preferential basis within the AUC community (eg through shareware models).

StickiesAV will be available under the BSD open-source license from a School WWW site (and the AUC site if desired).

Please enclose a supporting letter from your Head of Department, and provide the following details for your Head of Department.

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