



# UNIVERSITY of WASHINGTON

## Student Technology Fee Committee

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### DXARTS High Definition Post-Production Workflows

Proposal ID 2009-003-1

Revisions 2

Permanent Link <http://techfee.washington.edu/proposals/view/2009-003-1/>

Department DXArts

Non-core No restrictions

First No

AccessApplication? Student No  
Initiated?

#### Abstract

The DXARTS High Definition Field and Post Production Pipeline proposal is comprised of a suite of 4 highly integrated modules that will help create a uniform, reliable, and manageable HD camera and editing production pipeline in high demand by students across campus. Based on the documented success of DXARTS existing standard-definition video check-out and production pipeline, and data from our small proof-of-concept STF funded HD video proposal in 2008, DXARTS is proposing the creation of a new cost effective, efficient workflow, and scalable HD solution for students that will be the beginning of our migration to a full HD tapeless environment over the next 5 years. While the previous investment in RED HD video technology provides a stunning full scale film production solution, student demand for smaller, more flexible 1080p HD recording and editing is increasing and DXARTS needs to offer the campus a wider range of HD options that meet the diverse needs of the university. This new production pipeline package is designed to meet this demand in stages. First, by beginning the creation of a small fleet of light, multi-purpose, highly adaptable HD filmmaking and high resolution digital imaging tools more in keeping with the size and form factor of current student video production needs. Based on the wildly popular Canon DSLR 5D Mark II camera, the heart of our new HD video production does both ultra high resolution digital stills for animation and stereo imaging, as well as full 1080p HD video in a greatly reduced DSLR package. Second, the addition of much needed light weight and portable motion control systems that take advantage of the decreasing size and mobility of the new HD camera systems and provide basic camera motion needed in all comprehensive video production. Third, entry level HD video production access will be supported for an even larger number of students through a fleet of foundation-level, fully automatic Canon HF200 camcorders. Fourth, by the addition of significant memory, storage, real-time display and monitoring upgrades to our current editing capabilities to handle the much larger and more complex HD pipeline. Our 2008 STF proposal included upgrades for a small number of our production suites with HD editing and monitoring capabilities, and this proposal will help us extend that number to twelve editors fully HD ready. Lastly, this fourth module also includes support for the final output step of the production pipeline: Blu-ray burners for authoring new HD standard DVDs and inexpensive Mac minis for more flexible, small-footprint, algorithmically controlled HD display playback.

#### Background

The Center for Digital Arts and Experimental Media (DXARTS) is a University of Washington research center and degree program, built for the creation and study of new and experimental genres of digital art and culture. DXARTS offers BFA and PhD degrees with a range of concentrations including but not limited to aural and visual synthesis, telematics, algorithmic processes, interactive performance and mechatronics. DXARTS is highly supportive of student creative practice and research, especially for those working in emergent forms of invention. Students working within the program, utilize a wide array of technologies and skill sets from the Arts and Humanities to Science and Engineering in order to pioneer these innovations, and often must work on the forefront of multiple disciplines.

DXARTS has had remarkable success in the arena of digital video, fostered in part by a growing community of film units and resources on and around campus, as well as through continuous support by the STF. DXARTS will continue to contribute to the community and is looking seriously towards the prospect of a centralized University of Washington generative film program facilitated through our department. DXARTS already provides a wide array of video equipment to the student body through its affiliation with the CARTAH research center as well as through DXARTS video curriculum and interdisciplinary exploits. Through its resources DXARTS hopes to encourage this form of artistic practice and to provide an atmosphere where the student has access to the kind of vanguard equipment, resources and expertise that will enable them to be a pioneer in the field.

## Benefits

The items on this proposal were carefully selected by DXARTS students and staff, with the intent of providing the most important and immediately beneficial technology related to current and near-future student research work. These items are proposed to increase student access to much needed technology, fully integrate with DXARTS current inventory, and greatly extend our inventory with increased creative and technical possibilities.

MODULE 1: CANON 5D MARK II includes: Five Canon 5D Mark II cameras, lenses and adapters, storage devices & various accessories

The Canon 5D MkII is sending shockwaves through the video industry. With this camera, the greatest strengths of digital SLRs - breath-takingly shallow depth of field (DOF), powerful low-light capabilities and a renowned arsenal of specialized, interchangeable lenses - were suddenly fully imparted to the realm of HD video. Although video cameras with interchangeable lenses and similarly sized image sensors do exist, they are a whole magnitude more expensive and are far bulkier. With this camera students will be able to produce phenomenal 1080p HD movies, working solo if they choose, and they will have a strong repertoire of specialized lenses from which to select according to their unique project goals.

While the video capabilities of the Canon 5D MkII represent a dramatic revolutionary jump, its digital imaging capabilities also represent a substantial evolutionary step for DSLRs. Capturing 21 megapixels per shot, the digital stills from this camera provide enough data to print movie-sized posters and high-res magazine spreads. With its amazingly high light sensitivity and fast prime lenses this camera can capture hand-held, razor sharp images under previously unthinkable low-light conditions. Although the Nikon D3 was the first DSLR to offer 25,600 ISO, the 5D MkII offers twice the resolution at only half the cost.

The RED One camera, acquired in 2008 thanks to STF partnership and support, is capable of capturing 4K video - over four times the resolution that any 1080 HD TVs can even display. This will likely remain the top tier option for large, expert level UW student video productions aimed for the big screen. But for the new Blu-ray DVD and high-end TV users of today, the Canon 5D MkII delivers the needed resolution currently supported by these 720 and 1080 devices. And this landscape is unlikely to change within the next decade, making this camera a wise long-term investment for students who are developed solid skill in video production. While the RED One is essential for high-end cutting-edge student research, the bulk of student work evolves consistently through the natural process of introductory to intermediate, to expert skill level. These five Canon 5D MkII's can be purchased for much less than the Red One and dramatically help DXARTS and the STF expand the access UW students have to advanced HD video production cameras, and with the remarkable flexibility of interchangeable lenses that is so needed.

Lenses do comprise half of this modules cost and are an especially good investment because of their historically long useful life and value retention. For instance, with a simple Canon-to-Nikon adapter mount it is possible to use the 5D MkII with unique 35mm Nikon lenses sold during the 70s. In the other direction, a soon-to-be-released mount adapter will make it possible to use all of these Canon ES lenses with our RED One. Not only do some of these Canon ES lenses cost 5-10 times less than the equivalent PL lenses, but also many of these provide special capabilities - focal plane tilting, perspective shifting, fish-eye mapping, ultra wide-angle and super telephoto fields of view - that would not be possible on the RED otherwise. Especially in these trying economic times, we need this type of multi-purpose equipment which can perform double or triple duty.

If the 5D MkII only shot 1080p HD video, it would be a ground-breaking tool for professional movie-making; if it could only capture 21 megapixel digital stills, it would open up countless documentary and experimental possibilities. The fact that this one camera can so adeptly handle both, and switch from one to the other in a split second, will make it a truly extraordinary asset to the students at the University of Washington. The same camera that can be used to digitize historic 2D documents, too delicate or large for tabloid-sized scanners, can also be used to create cutting-edge experimental video. The same camera that can document student events with interwoven HD footage and 21 megapixel stills can also be used to photograph handheld at night with no more light than street lamps or a full moon. It is hard to overstate the versatility of this device.

To understand the kinds of results that this camera makes possible with its depth of field, low light capabilities and speciality lenses, please see this sample footage, it is extraordinary:

<http://www.usa.canon.com/dlc/controller?act=GetArticleAct&articleID=2326>

MODULE 2: VIDEO MOTION CONTROL includes: Zacuto DSLR Filmmaker Kit, ABC Mini-crane, remote HD monitoring equipment

Fluid, controlled camera movements can add new depth and fresh perspectives to students' video projects. Renting professional equipment for motion control can easily cost hundreds of dollars a day, with considerable time paid in just learning how to set up and operate these complex systems. University of Washington students currently have access to Glidecam and Steadi-cam equipment through CARTAH, with equipment training built-in as a standard part of the checkout process. The purpose for the equipment in this model is to further add key motion control capabilities to those that DXARTS already supports for UW students.

With the addition of the ABC mini-Crane, students will be able singlehandedly film with wide, sweeping pans and to raise cameras to vantage points of 2nd story windows. During a motion shot the crane can optionally maintain a fixed tilt angle or smoothly transition between dialed in initial and final positions. Despite its impressive versatility, the mini-Crane

can be setup and operated by a single person and transported in a small, shoulder bag one meter in length. Field monitors and HDMI cables allow for ground-level, remote viewing of what the camera sees and records. These same devices can also double as separate cameraman and director monitors for real-time evaluation and adjustment of shots in large-scale productions. The crane and field monitors are backwards and forwards compatible with DXARTS' SD and HD video equipment.

The Zacuto DSLR Filmmaker kit has a modular design that allows for flexible configurations with both the Canon 5D MkII and future DSLR's with video capabilities. The shoulder rest, dual handles, and rear counterbalance of this rig combine to give a precision balance to the DSLR form factor, facilitating steadier, less tiring movements at eye-level. This kit also adds follow focus, which is an especially important addition for maintaining precise focus when moving with shallow DOF settings.

MODULE 3: CANON AVCHD CAMCORDERS includes: Canon VIXIA HF200 cameras and accessories

While the Red One and Canon D5 Mk provide the solid HD pipeline at the advanced and intermediate level, The Canon VIXIA HF200 camera kits will fill an all important role as our wide use foundation-level HD video recording offering. Capable of recording 1080p24 HD video in fully automatic modes, this camera will deliver impressive results with no need for initial training which is very important for students whose entry level skill set needs to be equally supported. As students become more familiar with the HD workflow, the HF200 also boasts an impressive range of manual settings from which to choose and develop increasingly important production skills as they grow in video research. On the same size flash card as a Canon 5D MkII, the Canon HF200 can record 2-3 times as much video with its AVCHD 24 Mbps compression rate. Not only does this mean less chance of running out of memory in the middle of a shoot, but it also makes for easier editing and archival workflows. The Canon HF200 unique set of benefits make it more than just a stepping stone to DXARTS' more advanced HD video offerings, but an essential tool in the full production pipeline and workflow environment DXARTS is committed to providing.

MODULE 4: HD VIDEO EDITING STATIONS AND OUTPUT includes: RAM, eSATA PCIe cards, Sony HD Reference Monitors upgrades and Blu-ray burners and Mac mini kits for HD output

HD Video editing is an extremely memory and processor intensive workflow. Two years ago DXARTS purchased a dozen 4-core Mac Pro machines for video editing. These machines have facilitated an enormous amount of student work during their life. During this time processor speed innovation has more or less stagnated. Rather than purchasing brand new HD Editing stations with only marginal speed increases, it makes much more economic sense to invest in a handful of relatively inexpensive upgrade to our existing video stations. In fact all of these upgrades - more RAM for faster rendering, eSATA for high throughput external RAID drives, high fidelity HD reference monitors to ensure professional quality output, Blu-ray burners for authoring to the new HD standard for DVDs - would be extra add-ons if we were purchasing totally new computers. So this module helps students make the most of both the initial investment, and the longitudinal migration toward our full HD production pipeline. Lastly, in addition to supporting authoring for Blu-ray players, this module will make inexpensive Mac minis available in consideration for HD presentation pipelines that require more than standard dvd/blu-ray playback (i.e. algorithmic, interactive, etc.). Coupled with portable MOTU multi-channel audio interfaces, these mac minis will afford students a flexible mechanism for display of their work allowing integrated HD content in a wide array of permutations otherwise unavailable.

## Student Access

There are 3 primary ways for students to access the CARTAH facilities and equipment:

**CARTAH PROJECT PROPOSAL** - Typically these are research centered Arts and Humanities ventures, however, we are always looking for interesting ventures outside of our current vista to support. Practically all proposals submitted are accepted. In the case the proposal is not accepted the approval committee issues a statement or questionnaire to the student, addressing the issues and allows for an updated resubmission. Once approved the student has access to the open labs, the standard CARTAH inventory and is allowed to make reservations for studio access and training sessions for advanced equipment use. CARTAH provides a full-time technical staff, trained and willing to work with students to learn the tools necessary to complete their projects. Students are also encouraged to submit suggestions and requests for improvements in infrastructure or for various supplemental needs.

**DXARTS EQUIPMENT & CURRICULUM** - CARTAH is also affiliated with the DXARTS program, in that the coursework of the DXARTS is a synergistic training with the equipment and research perspectives of the CARTAH institute. There are a number of dedicated slots in all DXARTS courses for non-majors, as it is our goal to maintain an interdisciplinary perspective with the work we are involved in. Via non-major paths in DXARTS curriculum, another portion of the University community is allowed access to CARTAH facilities beyond the restriction of a research proposal. They may use the equipment for coursework, or for their own independent research, the latter of which is the most often case. CARTAH clients also have access to any DXARTS equipment that is not currently reserved for coursework.

**UNIVERSITY AND COMMUNITY INVOLVEMENT** - The access can be obtained in a third way, through community performance and involvement. Often, CARTAH clients perform or present their research to the larger student body, or in formats external to the university community. CARTAH clients can also work on projects that require a cohort or students, as is often the case in video productions supported by CARTAH. By doing so, CARTAH's outreach and benefits expand campus-wide, and community-wide, allowing for greater forums of appreciation, understanding and scholarship in the Arts, Humanities and beyond.

## Available Resources

The current offering of the DXARTS and CARTAH shared inventory includes state-of-the-art HD and SD digital video cameras, lenses, matte boxes, tripods, Russian dollies, gibs, steadicams, field monitors, green screen equipment, field audio equipment, mixers, microphones, and multiple high-end HD/SD editing suites for post, FX, scrubbing, finishing and

compositing CG. In short, DXARTS has the equipment and the expertise necessary for providing a viable framework in which students may work successful with the proposed equipment. We also provide application-based access to our Fremont laboratory and workshop where students may manufacture supplemental tools and rigings for the equipment and work within a system of ingenuity and experimentation that we fully encourage.

We currently have 3 full-time main campus technical staff, as well as 1 full-time Fremont lab shop manager. We also support workstudy employees and have 2 part-time undergraduate employees that are fully trained to help to facilitate student projects via technical support and equipment maintenance. We also maintain our own inventory/checkout system as well as provide 24-hour email support.

## Installation Timeline

This equipment will be purchased as soon as funds become available.

## Departmental Endorsement

This proposal is enthusiastically supported by Shawn Brixey, the Director of both DXARTS and CARTAH, and was produced in direct consultation with all the students, faculty and staff of these programs. He fully endorses this proposal and is committed to help support the implementation and expansion of this HD package with DXARTS resources here described in the event the proposal is funded by the STF committee.

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The most important mission that the University undertakes is the education of students. Especially important in this mission is the education of students in the use and practice of modern industry (or pier group) technology. This is a difficult task as technology is changing and its cost is an issue.

While the sciences (and engineering) often seem to be the place that one expects technology to play a fundamental role, we see today that the "Arts" has become serious environment for research of technology too. If a modern student artist is to become a voice of expression or change within today's society, they must have access to the tools of the trade.

High definion video (and high resolution photography) are really just starting to be experienced by many Americans. As a technologist, I have enjoyed the expressions and experiences of my friends as they watch HDTV or HD Video. The line between a film movie and a digital movie is clearly now gone! As February 2009 approaches, we will make one of the most significant changes in TV broadcast history -- the switch to digital TV and HDTV is coming along for the ride.

The DXARTS program is "not an average paint, clay and paper" art program. Their students are pushing the artistic limits of music, video, animation, programming and mechatronic art and to do so they need the proper tools. Broad access provided by DXARTS of HD Video cameras and supporting equipment to student across campus are essential to training our next generation of digital artists and pioneers (and is the proper research tools for this group of emerging artists). Therefore, I am happy to enthusiastically support this proposal.

Remember, "A day without an art experience is a wasted day"!

Professor Mark Ganter, Mechanical Engineering Department.

## Student Endorsement

I am writing this letter because I definitely encourage the funding of the Center for Digital Arts and Experimental Media HD proposal. As graduate student of DXARTS and Teacher Assistant of several courses of Digital Art, I can see the importance and strong value of having updated, high-quality equipment in the center. The benefits are not only for the DXARTS community but also for the entire big community of the University of Washington. In the case of this particular proposal, having a set of equipped Canon 5D HD cameras is of great benefit not only for people with main focus on video and cinema but also for all kind of students that requires to create high quality video documentation of their projects. As an example I would like to mention the extraordinary possibly of recording with extreme low light conditions by these cameras. I am a sound-artist constantly needing to do video recordings of my performances which tend to be in dark conditions. With this equipment, I would be able to produce my documentation with the professional standard that is nowadays required in my field. I am sure that many students from the university are in similar situations and these cameras will be of great help for them.

Hugo Solis  
PhD student and Teacher Assistant at the Center for Digital Arts and Experimental Media

I am in full support of this proposal. As an undergraduate student in both DXARTS and CHID, I can attest to the importance of HiDef technology for a wide range of disciplines at UW. From my experience, I have found that recording equipment of this caliber is a vital tool for not only artists but also for researchers of all backgrounds. This is especially true as more programs are beginning to integrate multimedia into presentations, web documents, etc. The equipment in this proposal would be an invaluable addition for academics in all disciplines.

Sincerely  
Erik Parr  
Undergraduate Student - DXARTS/CHID

It is my opinion that the high definition (HD) video production equipment will drastically improve UW student's skills in video production. As a student, I have been engaged in videography at various academic institutions - Zagreb University, State School of New York Oswego, New York University, Tisch School of the Arts, and now at the UW's DXARTS. Based on my experience of working in a wide range of facilities, I can testify to the benefit and value of having an access to the up-to-date equipment. Having a hands-on experience with the industry standard equipment, all students of UW will be able to develop skills that prepare them for professional careers across the disciplines. My own PhD study at the DXARTS would excel with access to the proposed equipment. For instance, Canon 5D Mark II would allow me to bring my image, photography and video capture quality to a new level. 16:9 Full HD video capture at 1920 x 1080 pixels and 30 fps as well as 4:3 standard TV quality (SD) video capture at 640 x 480 pixels and 30 fps plus an incredible variety of visual effects including everything from ultra-wide-angle and fish-eye to macro and super-telephoto and many large-aperture L-series professional lenses that can keep the main subject in razor-sharp focus while blurring the background beyond recognition, would enable new levels of creative expression. Therefore, I enthusiastically endorse the proposed funding for the HD equipment.

Maja Petric, DXARTS PhD student

Dear members of the Committee:

I am writing this letter to fully endorse and encourage the funding of the Center for Digital Arts and Experimental Media HD Project. I am a doctoral student at the DXARTS center and my research revolves around robotic video membranes. The innovative Canon 5D Mark II will play an essential role towards developing my interactive video systems because of the excellent low light recording capabilities. Not only will it allow me to work with the finest high-resolution equipment allowing for 21 megapixel stills in the middle of an 1080P HD recording, but the interchangeable lenses will also provide vast opportunities for artistic exploration. As an instructor in Digital Video Art and Experimental Cinema, these cameras will give my students so many advantages as they hone their own individual knowledge and expertise. Everyone will benefit from this cutting edge technology in so many different ways. As such, I urge you to give your highest consideration to the proposed funding of the Center for Digital Arts and Experimental Media HD Project.

Sincerely,  
Philomène Longpré  
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PhD Student DXARTS, Digital Arts and Experimental Media

As an undergraduate in the Center for Digital Arts and Experimental Media, I've been frequently impressed and occasionally dumbfounded at the accessibility of high-quality tools and facilities available to both experienced and developing artists. Not only does having access to cameras and attachments that would normally be far beyond my financial means enable me to produce technically advanced work, it supports and expands my education at the University of Washington by providing me with the industry-standard equipment I hope one day to be dealing with on a professional level. By funding the proposed purchase of HD cameras, upgraded computers, and crane systems, the Student Technology Fee would provide myself and my peers with the resources to explore exciting new ground unreachable to any of us individually. I support the proposed funding for an HD upgrade, and am excited by the potential for artistic exploration and educational growth it would offer.

Sincerely,  
Jason Reinhardt  
Undergraduate - DXARTS - University of Washington

As a graduate instructor in my third year of teaching experimental video at the University of Washington I strongly encourage the funding of the proposed High Definition Production package in DXARTS. Both as a student-instructor, and previously as a graduate student in the School of Art's Masters program in Sculpture, I have been extremely fortunate to participate in the collaborative connections DXARTS have made across campus. By bringing together students from such various disciplines as Engineering, Literature, Film Studies, Museology, Music, and Visual Arts (to name only a few), DXARTS has continuously fostered an environment of creative dialogue and discovery. This cutting edge production equipment will enable students to explore High Definition image making throughout their creative learning experience, from the beginning concepts of camera operation, through intermediate production, to highly-advanced media authoring and camera motion control.

Sincerely,  
Tivon Rice  
Pre-Doctoral Teaching Assistant- University of Washington - DXARTS

## Items

Below are the items making up the current proposal. The asterisk (\*) beside items signify that they were approved by the committee. This however was not implemented correctly for our database before 2005, so earlier years may not show this.

Click an item's title to view details on that item, or [show all item details](#).

Title	Type	Price	Qty	Subtotal
<a href="#">Canon 5D MkII</a>	audio/video-hardware	\$2,970.00	5	\$14,850.00
<b>Location:</b> Raitt Hall - 132				
<b>Description:</b> DSLR capable of shooting 1080p30 HD video with interchangeable lenses as well as 21 megapixel stills				
<b>Justification:</b> Amazing price point for a 35mm frame sensor system with interchangeable lenses that can shoot HD; DXARTS still camera offerings are limited and old.				
<a href="#">Canon EF 24-105mm f4 IS</a>	audio/video-hardware	\$1,056.00	5	\$5,280.00
<b>Location:</b> Raitt Hall - 132				
<b>Description:</b> Wide to short telephoto standard zoom with image stabilization.				
<b>Justification:</b> A mid-range, fixed maximum aperture zoom lens as one of the 5D MkII kit lenses.				
<a href="#">Canon EF 17-40mm f4L</a>	audio/video-hardware	\$682.00	5	\$3,410.00
<b>Location:</b> Raitt Hall - 132				
<b>Description:</b> Ultra wide zoom lens				
<b>Justification:</b> A kit lens for each of the Canon 5D MkIIs that handles wider fields of view for interiors.				
<a href="#">Canon EF 70-200mm f/4</a>	audio/video-hardware	\$638.00	2	\$1,276.00
<b>Location:</b> Raitt Hall - 132				
<b>Description:</b> Fixed maximum aperture telephoto zoom				
<b>Justification:</b> This will be an optional lens that students can use to supplement the longer focal length range supported by the Canon 5D MkII kit lenses.				
<a href="#">Canon EF 100-400mm f4-5.6L</a>	audio/video-hardware	\$1,375.00	1	\$1,375.00

**Location:** Raitt Hall - 132

**Description:** Super long telephoto zoom

**Justification:** Specialized, non-kit lens that will be perfect for documenting student performances, wildlife documentation, etc. from an unobtrusive distance

Canon Fisheye EF 15mm f/2.8	audio/video-hardware	\$671.00	2	\$1,342.00
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**Location:** Raitt Hall - 132

**Description:** Wide fisheye mapping lens

**Justification:** Provides the widest field of view of these lenses with that handles the view by mapping where straight lines not passing through the optical axis are mapped to curved lines. Great for photographing in tight spaces or for documenting fast, nearby action.

Canon EF 24mm f2.8	audio/video-hardware	\$308.00	1	\$308.00
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**Location:** Raitt Hall - 132

**Description:** Fast, wide prime lens

**Justification:** Great for low light shooting or extremely shallow DOF shots, given it's f/2.8 maximum aperture. Excellent optical qualities because of it's fixed focal length (next to no distortion or vignetting).

Canon EF 24mm f3.5 Tilt Shift	audio/video-hardware	\$1,210.00	2	\$2,420.00
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**Location:** Raitt Hall - 132

**Description:** Prime lens with tilt shift capabilities

**Justification:** A wide angle lens capable of focal plane tilting and perspective shifting, allowing for a wide range of creative looks to video and stills.

Canon EF 25 f/2	audio/video-hardware	\$308.00	2	\$616.00
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**Location:** Raitt Hall - 132

**Description:** Fast mid-range wide prime lens for separate checkout

**Justification:** Great for low light shooting or extremely shallow DOF shots, given it's f/2 maximum aperture. Excellent optical qualities because of it's fixed focal length (next to no distortion or vignetting).

Some argue that this lens provides the closest equivalent to the field of view of the human visual system.

Canon EF 45mm f2.8 Tilt Shift	audio/video-hardware	\$1,144.00	2	\$2,288.00
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**Location:** Raitt Hall - 132

**Description:** Normal field of view tilt shift lens for separate checkout

**Justification:** A normal field of view lens capable of focal plane tilting and perspective shifting, allowing for a wide range of creative looks to video and stills.

Canon EF 50 f/1.4	audio/video-hardware	\$358.00	5	\$1,790.00
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**Location:** Raitt Hall - 132

**Description:** Normal, extremely fast prime kit lens for each of the Canon 5D MkII's

**Justification:** This lens has amazing low light and shallow DOF capabilities, thanks to it's maximum f/1.4 aperture. It can capture 8 times the amount of light as the f/4 kit lenses. It also boasts one of the best MTF results of any lens and is relatively inexpensive to produce.

Canon 85 f/1.8	audio/video-hardware	\$391.00	1	\$391.00
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**Location:** Raitt Hall - 132

**Description:** Fast prime lens in mid-long focal range for separate checkout with the Canon 5D MkII

**Justification:** An excellent for portraiture because of it's ability to separate the subject from the background and quality of not distorting or flattening features. Great for low light shooting or extremely shallow DOF shots, given it's f/1.8 maximum aperture. Excellent optical qualities because of it's fixed focal length (next to no distortion or vignetting).

Canon EF 90mm f/2.8 Tilt Shift	audio/video-hardware	\$1,199.00	1	\$1,199.00
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**Location:** Raitt Hall - 132

**Description:** Tilt shift lens with long focal length

**Justification:** A long lens capable of focal plane tilting and perspective shifting, allowing for a wide range of creative looks to video and stills.

Canon EF 135 f/2.8	audio/video-hardware	\$325.00	1	\$325.00
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**Location:** Raitt Hall - 132

**Description:** Fast telephoto prime lens

**Justification:** An inexpensive fixed focal-length telephoto perfect for low light shooting or extremely shallow DOF shots, given it's f/2.8 maximum aperture. Excellent optical qualities because of it's fixed focal length (next to no distortion or vignetting).

16GB Sandisk Extreme III Compact Flash	audio/video-hardware	\$110.00	10	\$1,100.00
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**Location:** Raitt Hall - 132

**Description:** Fast flash card for 5D MkII.

**Justification:** These cards are capable of the fast write speeds required to record 1080p30 video on the Canon 5D MkII. Each card can hold 48 minutes of HD video, and 2 cards will be included in each kit.

Canon Battery Pack LP-E6 1800mAh	audio/video-hardware	\$88.00	5	\$440.00
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**Location:** Raitt Hall - 132

**Description:** Battery for Canon 5D MkII

**Justification:** So students will have a backup charged battery when the first is exhausted. With heavy usage batteries tend to lose their ability to retain their same initial charge, so this is especially important for heavily used checkout items.

Sandisk Extreme FireWire Card Reader	audio/video-hardware	\$66.00	5	\$330.00
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**Location:** Raitt Hall - 132

**Description:** Fast compact flash card reader to be included in the Canon 5D MkII kits.

**Justification:** With extremely large video files it is important to have a card reader that can handle the high read speeds of the Sandisk Extreme III compact flash cards.

15' USB A-mini B 5 pin Cable	audio/video-hardware	\$8.00	5	\$40.00
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**Location:** Raitt Hall - 132

**Description:** Long USB cable to connect the Canon 5D MkII to a computer.

**Justification:** Allows for tethered shooting, immediate download and viewing of footage to a computer and remote control of camera through supplied Canon EOS Utility software.

Canon WFT-E4A Wireless Transmitter	audio/video-hardware	\$1,055.00	2	\$2,110.00
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**Location:** Raitt Hall - 132

**Description:** Doubles as a wireless transmitter and portrait grip for the Canon 5D MkII

**Justification:** Allows for the wireless equivalent of tethered shooting, immediate download and viewing of footage to a computer and remote control of camera through supplied Canon EOS Utility software.

Especially important for remote capture with cranes or other rigs where wires are difficult to run. Also helpful for time lapse photography monitoring from any computer on the same subnet.

Canon RC-1 Wireless Remote	audio/video-hardware	\$26.00	5	\$130.00
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**Location:** Raitt Hall - 132

**Description:** Wireless remote for starting video recording or still image shutter release when in front of the camera.

**Justification:** Useful for starting videos of oneself or self portraiture.

Adorama Digital Remote Release Cable	audio/video-hardware	\$41.00	5	\$205.00
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**Location:** Raitt Hall - 132

**Description:** 3' Shutter release cable

**Justification:** Useful for long exposures where camera shake caused by pressing the shutter button could blur an image. Does not require a line of sight to the camera's IR receiver to trigger.

Nikon to Canon Mount adapter	audio/video-hardware	\$61.00	5	\$305.00
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**Location:** Raitt Hall - 132

**Description:** Allows Nikon Ai, Ai-s, AF and AF-D lenses to be used on the Canon 5D MkII ES mount.

**Justification:** Allows for an even wider array of lenses to be used on these cameras, many of them with optical qualities or price points not found in Canon's EF offerings. Aperture rings on the lenses are an especially nice feature.

Pelican 1450 Case with Dividers	audio/video-hardware	\$127.00	5	\$635.00
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**Location:** Raitt Hall - 132

**Description:** Protective case for Canon 5D MkII kits

**Justification:** These waterproof, shock absorbent cases will protect the investment in these kits. The kits will include the Canon 5D MkII, 24-105mm zoom, 17-40mm zoom and 50mm f/1.4 prime lens. The kits will also store the standard collection of cables, extra battery, and 2 memory cards. They also will have space for a couple additional, separate check-out lenses.

DSLR Filmmaker Kit #Z-DSLR-FILM	audio/video-hardware	\$5,578.00	2	\$11,156.00
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**Location:** Raitt Hall - 132

**Description:** Camera rig for Canon 5D MkII and future DSLRs with video capabilities.

**Justification:** This attachment allows the Canon 5D MkII to handle like a high end film camera, but for a fraction of the cost. The shoulder rest, dual handles, and rear counterbalance of this rig combine to give a precision balance to the DSLR form factor, facilitating steadier, less tiring movements at eye-level. This kit also adds follow focus, which is an especially important addition for maintaining focus when moving with shallow DOF settings.

ABC Mini-crane	audio/video-hardware	\$10,545.00	1	\$10,545.00
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**Location:** Raitt Hall - 132

**Description:** Portable tripod mounted crane system with carrying case

**Justification:** Allows for compelling video motion control and high vantage point shots.

Ikan V-8000HDe 8" LCD Field Monitor Kit	audio/video-hardware	\$1,166.00	2	\$2,332.00
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**Location:** Raitt Hall - 132

**Description:** HD field monitors for HD video cameras, including Canon 5D MkII and RED One

**Justification:** A necessity for camera motion control when the camera is not in viewing proximity to the operator (i.e. on the top of a crane 2 stories overhead). Can also be used in a configuration for cameraman and director separate viewing of real-time captured footage.

6' HDMI to mini-HDMI Cable	audio/video-hardware	\$34.00	5	\$170.00
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**Location:** Raitt Hall - 132

**Description:** Cables for attaching HD cameras to any HD compliant device.

**Justification:** Used in conjunction with Ikan V-8000HDe 8" Field monitors or video editing station monitors to provide immediate, remote viewing of HD footage or high-res digital stills.

1x2 Powered HDMI Splitter	audio/video-hardware	\$39.00	5	\$195.00
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**Location:** Raitt Hall - 132

**Description:** Allows one HD signal to be routed to two separate HDMI compliant monitors.

**Justification:** These will be necessary for director/cameraman split viewing set-ups and can also be used for experimental video display or an inexpensive way to extend the run of mini-HDMI to HDMI cables.

20' HDMI to HDMI Cables	audio/video-hardware	\$21.00	5	\$105.00
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**Location:** Raitt Hall - 132

**Description:** Standard HDMI cables with long run

**Justification:** Inexpensive way to extend the run of mini-HDMI to HDMI cables for crane setups or director/cameraman separate viewing setups.

Canon VIXIA HF200	audio/video-hardware	\$770.00	6	\$4,620.00
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**Location:** Raitt Hall - 132

**Description:** 1080p24 AVCHD Video Camera

**Justification:** A great value for a foundation-level, fully automatic HD camera that can also be manually controlled when desired. In combination with the advanced-level Canon 5D Mk II kits and expert-level RED One camera, these cameras will dramatically increase University of Washington students' access to high quality HD recording.

Impact .45x Wide Angle Converter	audio/video-hardware	\$55.00	6	\$330.00
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**Location:** Raitt Hall - 132

**Description:** Wide angle converter lens for Canon HF200 kits

**Justification:** The Canon HF200, like most cameras in its price-range, has a zoom range that provides a normal to long telephoto range. This adapter supplements this range by halving the effective focal length of the lens and thereby providing a nice wide angle end to the zoom.

Sandisk 16GB Ultra II SDHC	audio/video-hardware	\$72.00	12	\$864.00
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**Location:** Raitt Hall - 132

**Description:** High speed flash cards for Canon HF200 kits

**Justification:** Each of these cards will record over an hour of footage on the Canon HF200. One can swap out cards for longer recording, downloading on a filled card while recording continues on a second.

Canon BP-809 Lithium Ion Battery	audio/video-hardware	\$66.00	6	\$396.00
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**Location:** Raitt Hall - 132

**Description:** Battery for Canon HF200 kits

**Justification:** Ensure that a shoot can continue if supplied battery runs out of power.

Lowepro Edit 110 Camera Bag	audio/video-hardware	\$22.00	6	\$132.00
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**Location:** Raitt Hall - 132

**Description:** Camera bag for Canon HF200 kits

**Justification:** Protects camera kit and makes for easy checkout with all included accessories

SanDisk MobileMate USB SDHC Reader	audio/video-hardware	\$13.00	6	\$78.00
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**Location:** Raitt Hall - 132

**Description:** Fast USB SDHC card-reader for Canon HF200 kits.

**Justification:** Allows for the downloading of one card while still recording with the HF200 on the second card supplied in the kit.

16GB RAM upgrade 667Mhz ECC	audio/video-editing	\$586.00	10	\$5,860.00
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**Location:** Raitt Hall - 205, 129, 132

**Description:** Memory upgrade for Mac Pro video editing stations

**Justification:** Give current video editing stations the main memory they need for fast rendering and responsive editing with much more highly demanding HD video editing.

Sony LMD-2030W 20	audio/video-editing	\$1,265.00	10	\$12,650.00
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**Location:** Raitt Hall - 205, 129, 132

**Description:** 1080 HD Reference monitors

**Justification:** Replace SD reference monitors for editing stations so full 1080 HD can be edited in high-fidelity color accuracy and resolution. These monitors are backwards compatible with our SD DV decks and can also double as extended desktops for these stations.

Panasonic Blu-ray SW-5583-C burner	audio/video-editing	\$473.00	10	\$4,730.00
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**Location:** Raitt Hall - 205, 129, 132

**Description:** Internal SATA Blu-ray burners for Mac Pro video editing stations

**Justification:** These drives are necessary to author high definition DVDs; today's DVDs would reduce the HD workflow to SD quality.

Fortunately, the video editing stations have dual optical bays, with one left empty by default. We will therefor be able to use both drives together, cutting out a time-consuming middle step for backing up optical media.

CalDigit Fasta-2e eSata PCIe Cards	audio/video-editing	\$61.00	10	\$610.00
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**Location:** Raitt Hall - 205, 129, 132

**Description:** A PCIe card that adds two eSATA inputs

**Justification:** eSATA is included on many high end external drives where maximum throughput is a priority. Fast, constantly sustained throughput is a necessity for editing many HD compression schemes in real time.

Mac mini 1.83Ghz	audio/video-hardware	\$579.00	4	\$2,316.00
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**Location:** Raitt Hall - 132**Description:** Small footprint computer capable of a wide range of HD playback**Justification:** For locations where an Blu-ray player is unavailable or too bulky and for situations where interactivity is desired to control the playback of HD video. These will be available for students to checkout to present their HD work, alongside the projectors already available.

Motu Ultralite FW audio interface	audio/video-hardware	\$549.00	4	\$2,196.00
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**Location:** Raitt Hall - 132**Description:** Multichannel firewire external audio interface**Justification:** Provides advanced audio out from the Mac mini kits to DXARTS' high end speaker systems, for portable HD video display.

<b>Requested Total:</b>	\$101,450.00
<b>Approved Total:</b>	\$0.00
<b>Funding Status:</b>	Rejected

## Comments

 Add Comment

This proposal gives students access to a highly professional digital video & stills workflow. Its emphasis on lightweight equipment and fast computing is well suited to the realities of student production. In researching this proposal, DXARTS consulted with me and other industry professionals to figure out a relevant and practical package of equipment and software. I heartily endorse this proposal. -Noel Paul

I strongly encourage this proposal. The equipment would be essential for further exploration into the multimedia and medium. Equipment such as HD equipment would open a wide range of new possibilities in most areas of knowledge within the DXArts program.

I heartily support the acquisition of this extensively researched package of tools that will not only directly benefit my own explorations and artistic experiments as a PhD student in the DXARTS program, but injects state of the art equipment into the University of Washington ecosystem. As a new student on this campus I am continuously impressed by and proud of the spirit of excellence, outreach and community that goes into not just the work that is created here, but technologies themselves that are so critical to this work. The stewardship of these tools to ensure their best use, both technically and artistically, is an implicit component of this proposal and I can attest to the considerable thought put into assembling the most cost-effective, flexible and appropriate package that meets the needs of the student body. As attested to above, this package supports majors and non-majors, student artwork and student documentation, introductory to advanced student work, mobile and installation scenarios and not only integrates with current equipment, but anticipates the needs of the coming years based on the known technical landscape.

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-Meghan Trainor, Doctoral Student, DXARTS

As an undergraduate student in the DXARTS program, I recognize what a huge opportunity it would be to have this caliber of equipment within our department. This program

provides a collection of some of the brightest, forward-thinking minds I've known. Coupling this talent with cutting edge equipment can only further the university as a whole, as well as the lives of individuals on campus and the careers of young new artists. Financially, these resources would be unattainable for most. If acquired, it would allow for educational exploration on a highly-advanced and even professional level. I am already deeply grateful for the DXARTS program. I look forward to watching this department grow and continue to distinguish itself amongst the nation. I'm even more excited to be a part of it. The approval of this proposal would be a vital step along the way.

I strongly support this proposal as well. As a DXArts undergrad, I know the equipment would be in incredibly capable hands. The movement to a full HD production line I think is essential, and would allow for sharp, beautiful work to be produced. With the adoption rate of HD televisions sky rocketing, a lot of people would be able to enjoy the hi-def material produced. Since video can reach a wider audience, having it at a full 1080p resolution would better serve both the DXArts department and the UW.



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