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**MURI Mentor's Project Proposal Form**

*To be completed and submitted by an IUPUI faculty member or a researcher. Students may submit a proposal through an IUPUI faculty or researcher sponsor. Team proposals consisting of a Principal Mentor (PM) and multiple Co-Mentors (Co-Ms) are welcome.*

**Notes about Participants:**

- **Students:** Student participants are paid a stipend. The maximum number of students on a MURI Research Team is six. If seven or more students are included on a team, the students participating in the project, who are full team members, will not receive the regular compensation of \$1,200 during the academic year or \$3,200 during the summer, but will receive compensation through a MURI Team block grant (see <http://crl.iupui.edu/muriIUPUI/block.asp>) at the discretion of the MURI program.
- **Mentors:** Only Principal Mentors and Co-Mentors are paid on MURI Teams (\$500 each). There must be at least two scholars on the team for every mentor who is paid through the program. Postdoctoral researchers and qualified graduate students, recommended by their IUPUI supervisors may be designated principal mentors or co-mentors.
- **Other Project Participants:** Proposals may also include unpaid consultants, graduate students, postdoctoral researchers, and staff members as unpaid team members. These personnel do not need to be listed on the cover page but their roles may be explained in the proposal where appropriate. However, personnel who spend a substantial amount of time personally mentoring MURI scholars on the project should be designated as Co-Mentors.





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Disciplines or majors of students (at least two disciplines or majors): Electrical and Computer Engineering, Music and Arts Technology, Computer, Information and Leadership Technology, Informatics, Art.

Skills expected from students: Software programming, Network IT Processes, audio control, video capture, editing and production, live sound and video management.

### Names of students you request to work on this project.

(Mentors are invited to recommend students that they would prefer to work on the proposed project. Please provide an email address and a rationale; for example, a student may have an essential skill, may already be working on a similar project, or may be intending to apply to graduate school to pursue the same area of research.

*Please Note: All students must complete the Center for Research and Learning MURI Application Form to be considered for financial support. The Center for Research and Learning will consider these requests, but cannot guarantee placement of specific students on teams.*

**Name of Student:**

**Student's Email:**

**Rationale:**

1) Scott Humphreys: [scohumph@uemail.iu.edu](mailto:scohumph@uemail.iu.edu)  
previous MURI projects.

Did great work for us on two

2) Cletis Jones [c.jones2@yahoo.com](mailto:c.jones2@yahoo.com)  
previous MURI project.

Did really good work for us on one

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**PROPOSAL**  
**SOFTWARE AND TECHNICAL PRODUCTION FOR THE INTERMEDIA ARTS FESTIVAL**

**OVERVIEW**

This document proposes a MURI grant to fund a multi-disciplinary team of undergraduate students to participate as members of a high technology production team for the Intermedia Festival to be held in Indianapolis April 23-25 2010. Qualified students will come from the IUPUI School of Engineering and Technology Departments of Electrical and Computer Engineering, Music and Arts Technology, and Computer, Information and Leadership Technology. IUPUI students in other areas of the university who are developing skills in computer motion tracking, videography, computer graphics, photography, live sound, marketing, recording, editing and lighting design are also encouraged to apply.

**INTERMEDIA FESTIVAL**

The Intermedia Festival is the project of Professor Scott Deal (Music and Arts Technology), who was awarded a significant New Frontiers grant to produce the festival. The Intermedia Festival is a world-class event that highlights the emerging artistic trends in live media performance and in telematic art. Telematic art synthesizes mediums such as live music, dance, drama and visual arts with Internet-based interactive processes and performance content. The resulting productions connect media-rich spaces to the real world using modern communication systems to create powerful and evocative experiences. This is a new and highly innovative medium whose parameters and possibilities are being explored by research institutions, visualization labs and computing centers worldwide.

The Intermedia Festival will feature prominent new media performing artists from around the world. While some will travel to Indianapolis, others will participate through various partner sites. Online artists will present, perform and engage with sophisticated interactivity. Conversely, the festival will feature Indianapolis art and talent to cultural communities throughout the globe. The exchange will occur through multi-site, high fidelity conferencing software being developed in the Telematic Lab at the Donald Tavel Arts Technology Research Center, IUPUI. Interactive drama, dance, music, visual arts, cinematography, scientific presentation, commentary, and multi-site discussion/interaction platforms will synthesize into a provocative and compelling experience.

**PARTNERSHIP WITH THE INDIANAPOLIS PUBLIC LIBRARY**

The Intermedia Festival is partnering with the Indianapolis Public Library, and a significant portion of the events will be held in the recently opened Clowes Recital Hall at the downtown library. This partnership between IUPUI and the Library will enhance the profile of the Festival, and will also attract many residents of the city and downtown districts.

**DEVELOPING ARTISTIC PERFORMANCE PRACTICES USING COMPUTER INTERACTIVITY AND MEDIA ENRICHED SPACES AT IUPUI**

The computer infrastructure of IUPUI is among the most robust in North America. As one of the founding partners in the Internet2 Consortium, it is therefore a natural location for preparing and hosting a festival that highlights expression in emerging telecommunications technology. The intrinsic nature of telematic art allows for a much broader and more eclectic use of spaces for performers and audiences. As a result, the festival will not stop at filling spaces that join the project with live performance. Rather, it

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will extend into the communities beyond through web enabled communication devices. This level of interactivity will be a powerful bridge between institutions, local audiences and the world-wide community.

#### **TELEMATIC OPERA PREVIEW**

The centerpiece of the Festival will be the world premiere of *Auksalaq*, a telematic opera composed by Matthew Burtner for the Festival. *Auksalaq*, the Inupiaq Eskimo word for “melting snow”, is a live, multimedia opera performed simultaneously in select venues worldwide. Using distance technology, live music, dance, movement, visual arts and commentary, the work creates a rich counterpoint of media linking great distances. *Auksalaq* will integrate artistic expression, scientific information and social/political commentary to present an interactive, multi-dimensional experience. The piece illuminates scientific analysis as well as cultural and political issues surrounding global climate change. Renown electro-acoustic composer Matthew Burtner received a commission from the George and Eliza Howard Foundation to create the music and libretto for the work, which will be completed in fall of 2009. The official premiere of the opera is scheduled for late 2010 or early 2011, but the Intermedia Festival will present a preview performance of certain sections of the opera.

#### **BUILDING ON PAST MURI PROJECTS TO DEVELOP SOFTWARE TOOLS AND BEST PRACTICES**

Computer engineering students will be continuing the work of former scholars from the 2008-09 school year and 2009 summer MURI programs who helped to begin developing modifications to existing teleconferencing software applications in order to render them more effective for telematic purposes. Currently the researchers in the Tavel Center Telematic Lab located in the Department of Music and Arts Technology at IUPUI are using an array of customized applications such as DVTS, Confernce XP, Access Grid and commodity applications to network with performers and technicians in throughout the world. The students will receive hands-on, real-world experience not only in dealing with software solutions, but also in field testing their work with these online collaborators. Institutions currently in collaboration with IUPUI include Norway Academy of Music, University of Oslo, State University of New York Stonybrook, Rensselaer Polytechnic Institute, University of Illinois Urbana-Champaign, University of Alaska, University of Utah, University of Virginia, and University of Southern California.

#### **COLLABORATING WITH WORLD CLASS PERFORMING ARTISTS**

Some of the most innovative and dynamic performers using high technology will be presented at the Festival. The list of performers includes PamelaZ, Bora Yoon, Stephen Drury, Matthew Burtner, Big Robot, Luke Dubois, and Dance Kaleidoscope, and dancers from Florida State University, Butler University and University of Virginia to name a few. A complete list of invited artists and collaborators is found in the attached pdf. prospectus for the Intermedia Festival.

#### **MURI PROJECT PROPOSAL OBJECTIVE**

Due to the live, global nature of the artistic processes involved for the Festival, the network systems structure will require a customized synthesis of current applications relating to internet transmission of high fidelity audio and video streaming, synchronization, integration with existing media and live players.

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Researchers are needed to assist in creating a networked, ubiquitous computer environment capable of the following criteria:

- Combine the HD SDI video to high fidelity audio with minimal compression and latency (less than 30ms) to 10 sites in North America and Europe.
- A single platform for video and audio control interacting with and displaying imagery from 10 remote sites.
- Customize a communications format for realtime control and direction of players and technicians.
- Create software to synchronize artists and media at multiple sites.

**TEAM ORGANIZATION**

The team will be centered at the Tavel Center Telematic Lab, 385 ITCT. The role of the mentors will be to guide the students in the work process, supervise code writing, and keep the engineering students apprised of common issues related to creating artistic work with the internet. This work will occur in the Telematic Lab, room 385 of the ITCT Building. The MURI students who are not working on programming aspects of the project will work as a tightly coordinated team on production media issues, interfacing with the various university sites through the internet as well as working with the guest artists who will be performing at IUPUI and downtown Indianapolis. Assisting Professor Deal in the mentoring of the students will be Chiuyaun Meng, a full-time Instructor of Music Technology at IUPUI. Meng has advanced expertise in computer science and information technology, and will be helping to provide more technical background in guiding the student's progress.

**Student Expertise Recommendations**

Students involved with programming should be computer science or computer engineering, familiar with programming, junior or senior status. They will need to be capable of cross platform development, and programming with C++. Other expertise areas will include ability to work high end HD Cameras, video and audio mixing, computer graphics, information technology skills such as web presence and network issues related to high bandwidth pathways such as Internet2. **This project is going to be especially productive for the brand new 1<sup>st</sup> class of the newly established Bachelor of Science in Music Technology majors. Currently, the first class of students, who will graduate in 2013, will have an opportunity to join a multi-disciplinary team of peers in other majors. This will be a wonderful boon to their university experience.**

**Mentor's Roll:**

- Provide overview of software, hardware and IT issues pertinent to project.
- Provide software development criteria
- Review student outcomes, critique and direction
- Supervise and coordinate team work
- Oversee preparations for outcomes assessment, and Festival presentation

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Student Participant

- Conduct work in Telematic Lab during regularly scheduled times weekly
- Become familiarized with software applications, and related hardware necessary to the project
- Interact with online collaborators at partner institutions
- Assist in preparation and presentation of the Intermedia Festival, April 23-25.

EXPECTED OUTCOMES

The expected outcome of the project is the formation of a usable platform that integrates high-end audio, HD-SDI video and media-related computer processing over high-bandwidth networks such as Internet2. The composition and creation of the FEstival will be used as the framework that provides remote site collaborators, artists in various disciplines, and opportunities to test the platform in a realtime and real world environment. Several high profile public concerts in downtown Indianapolis are planned to launch the first public use of the software platform and other esoteric and innovative applications.

BENEFITS

- Students will learn to apply technical expertise in a multi-disciplinary environment, with artists from a variety of mediums.
- Learn systems vital to the music and media industries through becoming familiar with a range of software applications needed for the platform.
- Become familiar with IT related issues of network transmission of uncompressed video data, routing, synchronization and fidelity.
- This should prove to be a tremendous benefit for any engineer seeking employment in the media arts industry, which includes television, film, live music, and web design/implementation.

TIMETABLE

<u>Time Frame</u>	<u>Tasks</u>
<u>November 2009-January 2010</u>	<b>Programmers:</b> pick up on previous work of developing a cross platform, customized version of Conference XP. <b>Student Techs:</b> Begin work planning with professor Deal prepare performance implementation plans in the originally mentioned fields. Assist with web-communication with artists from areas outside of Indianapolis.
<u>February-March</u>	<b>Student Programmers:</b> Generate compound video streams containing different resolutions optimized for computers with various processing power and bandwidth conditions. Work on video data interface. <b>Student Techs:</b> participate in weekly rehearsals and planning sessions in the Tavel Lab with Professor Deal. Develop expertise on lab video cameras, video and audio mixing and switching gear, plan

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	technical road map for approximately 15 scheduled hours of performance to occur during the Festival. All Scholars: Other related duties as assigned.
<u>April 2010</u>	<b>Student Programmers:</b> Create application interface so 3 <sup>rd</sup> party applications can real-time process the audio/video stream based on artistic needs. Refine remote node control system or actions such as remote audio/video mixing. <b>Student Techs:</b> final rehearsals and preparations for festival. Execute Intermedia Festival April 23-24. All scholars: prepare one or more poster presentations for the IUPUI Research Day.

**PROJECTED RESULTS AND ASSESSMENT**

Results of the creation of a telematic software platform will be presented at the 20<sup>th</sup> Annual Music Technology Conference and Workshop to be held in June 2010. Artistic assessment of the project's success will be determined through a variety of indicators, including invited performances internationally, printed reviews and conference presentations on related best practices. Since the Intermedia Festival will be a work of global significance, students will gain important professional real-world experience in preparation for careers in computer programming, IT, and technology related creative enterprises.

**BUDGET**

The 2000.00 will be used to purchase pertinent computer and related peripherals needed so that students can effectively interface with the artists and online performers of the Festival.

**SCOTT DEAL BIOGRAPHY AND ABBREVIATED CV**

Scott Deal is an active performer/composer of new works whose appearances include venues, festivals, and conferences throughout the world. Known to deliver a "riveting performance" (*Sequenza 21*), he is in demand as an interpreter of music for some of today's leading composers. Continually inspired by new and emerging artistic technologies, he is the founder of the *Telematic Collective*, an Internet2-based performing ensemble comprised of a multi-disciplinary group of artists and computer specialists. In this capacity he has performed at Supercomputing Global, SIGGRAPH, Chicago Calling, Ingenuity Festival and with groups that include ART GRID, Another Language, Digital Worlds, Second Life Dance and the Helsinki Computer Orchestra. As a percussionist, he can be heard on numerous recordings from Albany, Centaur, Cold Blue and SCI labels. Dr. Deal is a Professor of Music at IUPUI, and the Director of the Donald Tavel Arts Technology Research Center at IUPUI. He is also a Research Affiliate for the Arctic Region Supercomputing Center at the University of Alaska Fairbanks, where he worked from 1995-2007.

**SCOTT DEAL Selected CV Information**

**EDUCATION**

UNIVERSITY OF MIAMI, Coral Gables, Florida, DMA in Percussion Performance, 1994;  
 UNIVERSITY OF CINCINNATI, COLLEGE-CONSERVATORY OF MUSIC, MM, 1982;  
 CAMERON UNIVERSITY, Lawton Oklahoma, BA in Music with High Honors, 1980

**TEACHING**

UNIVERSITY OF ALASKA FAIRBANKS, Assistant Professor-Professor of Music, 1995-2007  
 DEPARTMENT OF MUSIC, IUPUI, Professor of Music, Director, Donald Tavel Arts Technology Center, 2007

**AFFILIATIONS**

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Arctic Region Supercomputing Center, University of Alaska Fairbanks; Research Affiliate, 2004-07

ART GRID Telematic Consortium (<http://artgrid.chpc.utah.edu/>), 2003-07

New England Conservatory, Artist Faculty, Summer Institute for Contemporary Performance Practice, 2006-08

Fairbanks Summer Arts Festival, Guest Artist, 1996-2007

### Internet2 Performances

*Interplay: Dancing on the Banks of Packet Creek* (world premiere, 2006), presented by ART GRID, an Internet2, telematic multi-disciplinary performing arts ensemble with collaborators from UAF, University of Utah, University of Illinois Chicago, Purdue University, University of Montana, and University of Maryland

*Net Jam*, Internet2 distributed improvisation with the Helsinki Computer Orchestra, Helsinki, Finland

*Chicago Calling* (2006) Internet2 distributed improvisation with musicians at Stanford University, University of California San Diego, University of Alaska Fairbanks and selected venues in Chicago

*Interplay: Loose Minds in a Box* (world premiere, 2005). ART GRID at University of Utah, UAF, University of Utah, University of Illinois Chicago, Purdue University, University of Montana, and University of Maryland

*Interplay: Hallucinations* (world premiere, 2004). ART GRID, Artists from UAF, University of Utah, and University of Maryland, at University of Utah.

### Selected Other Performances

*Children of a Common Mother* (2007), Internet2 distributed group performance, University of Florida  
*Conference on Indigenous Cultures.*

*Levitation Games* (world premiere, 2007) with Robin Cox Ensemble, Miles Memorial Playhouse, Santa Monica, CA

*Drumma*, by James Oliverio (2006) Keynote Concert, College Music Society National Conference, San Antonio Texas. Internet2 Performance between San Antonio, U. of Alaska Fairbanks, U. of Florida, U. of S. Carolina

*Cocolithophore* for Two Percussionists, Electronics, and Internet by Scott Deal (world premiere, 2005).  
University of Alaska Fairbanks Internet2 Day Conference

*Windgrains for Flute and Percussion* by Matthew Burtner (world premiere, 2006). Florida Flute Association

*Roar* for soloist and electronics, and *Qilyaun*, for percussion quartet (with the Percussion Group Cincinnati, 2005),

by John Luther Adams, at the Percussive Arts Society International Convention

Solo Recital and five-day residency, University of California Santa Barbara. May 2005

*Interplay: Loose Minds in a Box* (2005), presented by ART GRID, at SC GLOBAL, Seattle

*Red Arc, Blue Veil* by John Luther Adams at New England Conservatory with Stephen Drury September 2005

*Interplay: Loose Minds in a Box* (2005) with ART GRID at SIGGRAPH in Los Angeles

*Virtual Improvisations* (solo concert, 2001), Percussive Arts Society International Convention, in

Nashville, TN *Coyote Builds North America* by John Luther Adams at Arena Stage in Washington DC, 2001

Solo Concert, Alternativa Festival, DOM Cultural Center, Moscow Russia. December 2001

*Virtual Improvisations* (2001), performed for the Alaska Percussive Arts Society (PAS) Day of Percussion, Anchorage

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*Earth and the Great Weather* by John Luther Adams, 2000, Almeida Theatre, London, UK,  
Solo Concert (1996), Society of Electro-Acoustic Musicians in the U.S. (SEAMUS), International  
Conference, Solo

*Hinomi for Solo Percussionist* by Michael Finnissy (2006), New England Conservatory of Music

**Paper Presentations (Juried Selection)**

*Performance Beyond Place: Musical Applications on Internet2* (2006), College Music Society National  
Conference

*The University Telematic Ensemble*, (2006), at the Association of Music Technology Instructor's National  
Conference

*Recent Developments in Internet Technology* (2005), at the Percussive Arts Society International  
Convention

*Producing Music Performances on the Access Grid* (2004), Association of Music Technology Instructor's  
Conference

*The Access Grid as a Tool for Music Performance* (Poster, 2004), College Music Society National  
Conference

**Book Chapters**

*Percussion and Technology* chapters and DVD demonstrations in Teaching Percussion, 3<sup>rd</sup> Edition, by  
Gary Cook (ed.). Schirmer, 2006

## **Chuiyuan Meng**

Chuiyuan Meng, Visiting Lecturer of Music at IUPUI, is a concert pianist, software engineer, and web designer. He received his Bachelor of Music degree from the College of Music at Capital Normal University, Beijing, China, and his Master of Science in Music Technology degree from the Indiana University School of Music Program at IUPUI.

As a musician, Mr. Meng won several awards in various piano competitions including the No.2 and No.5 Beijing Hope Cup Piano Competition. He has performed many concerts and recitals in China and the United States.

In addition to his musical foundation, Meng has also developed professional skills in areas of software programming, multimedia and graphic design. For the last ten years, he has been experimenting with new techniques of programming the Internet, while developing Internet software utilizing Web 2.0 and relevant Rich Internet Application technologies. He has developed a powerful set of software tools that enhance experiences for musicians and higher education students and faculty. His first major software publication, Pagico, is available on the Internet.

In addition to teaching music technology-related courses at IUPUI, he also works as a music technology specialist for Donald Tavel Arts and Technology Research Center.

## **Experience**

**VISITING LECTURER, DEPARTMENT OF MUSIC AND ARTS TECHNOLOGY AT IUPUI. —  
2008.6 - NOW**

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Worked as a Visiting Lecturer in the Department of Music and Arts Technology, teaching undergraduate level music minor classes including Music and Computer, Music Theory, Music for the Listeners, Introduction to Music Fundamentals, and Music for Films.

### GRAPHIC DESIGNER, DEPARTMENT OF MUSIC AND ARTS TECHNOLOGY AT IUPUI. - 2008.6 - NOW

Worked as the graphic designer for the Department of Music and Arts Technology, designed many marketing materials including brochures, booklets, posters, as well as the banner set.

### TECHNOLOGY SPECIALIST, DONALD TAVEL ARTS RESEARCH CENTER. - 2008.6 - NOW

Worked as the technology specialist for the Donald Tavel Arts Research Center at IUPUI, providing technical support and advising for various types of telematic concerts and conferences.

### SOFTWARE ENGINEER, IUPUI TELEMATIC CONCERT. - 2008.4

Worked as the software engineer for the IUPUI Telematic Concert, providing super low-latency video and audio transmission support for musicians from four cities across the United States to perform together.

### WEB ENGINEER, SCHOOL OF MUSIC AT IUPUI. - 2008.3 - NOW

Worked as the Web Engineer for the School of Music at IUPUI, developing Web applications for faculties and students, using cutting edge Web 2.0 technologies.

### GRADUATE ASSISTANT, SCHOOL OF MUSIC AT IUPUI. - 2007.8 - 2008.5

Worked as a Graduate Assistant in the School of Music at IUPUI, taught one lecture class MUS-110 Computer and Music, and two relevant lab classes.

### SOFTWARE ENGINEER, PAGICO SOFTWARE, INC. - 2007 - NOW

Worked as chief software engineer for Pagico on Windows and Mac. Mainly in charge of software interaction design, graphic design, software programming, and the coordination with Linux software engineers for the Linux edition of Pagico software.

### PRODUCT MANAGER, SOFTWARE ENGINEER, SEVENONLINE, CO., LTD - 2005 - 2007

Employed as the project manager in the development team for CodeX Apps, a collaborative project management software for Mac and Windows. Mainly in charge of product marketing, software engineer as well as web designer. CodeX Apps was the predecessor of Pagico software.

### WEB DESIGNER, CENTURYVOICE, CO., LTD - 2003 - 2006

Worked as graphic designer and website engineer for Beijing CenturyVoice Electronic Musical Instrument Co., Ltd. Mainly in charge of system architecture design, user interaction design, graphic design and web programming with advanced database integration.

### TECHNICAL ASSISTANT, CAPITAL NORMAL UNIVERSITY - 2002 - 2006

Worked as Technical Assistant for two computer labs and all the computer systems in offices. Mainly in charge of college servers, computer system maintain, professional music software / hardware trouble shooting and system upgrade and deployment advisor.

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**SOFTWARE ENGINEER, CAPITAL NORMAL UNIVERSITY – 2002 - 2006**

Developed the IAS (Internal Administrative System) for College of Music, Capital Normal University. Mainly in charge of system architecture design, user interaction design, database design and development, and software programming.

**SYSTEM ARCHITECTURE ENGINEER – 2002 - 2006**

Worked as System Architecture Designer, developed and kept updating the "CodeX" framework, which is being used in many software projects, including Pagico.

### ***Education Background***

Indiana University – Master of Science in Music Technology, 2008.  
Capital Normal University – Bachelor of Literature in Musicology and Music Education, 2006.

### **Professional Skills**

- ▶ Graphic Design (Adobe Photoshop / Illustrator). 7 years of experience.
- ▶ Standard-Compliant Web Design: XHTML / CSS. 6 years of experience.
- ▶ Web 2.0 Application Development, PHP, MySQL and other databases. 5 years of experience.
- ▶ Interactive / User Experience Design, 5 years of experience.
- ▶ Search Engine Optimization (SEO), 5 years of experience.
- ▶ Web-Base Marketing, 5 years of experience.
- ▶ Software Project Management, 3 years of experience.
- ▶ Multimedia Production / DVD Authoring / Book Cover & Layout Design
- ▶ System / Database Structure Design, 5 years of experience
- ▶ Product Package Design, 3 years of experience
- ▶ Experienced with Digital Audio Workstation software (Protools / Logic Pro / Cubase / Reason / Cakewalk / Band-in-a-box / Max)
- ▶ Classical Pianist, 17 years of experience, several awards and recitals.
- ▶ Certified Teacher in General Music.

**Note: will bring signed copy to the proposal office.**

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**SIGNATURES**

**Name and Signature of the Principal Mentor:**

*(writing the full name suffices as signature for electronic copies)*

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Name	Signature	Date
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**Name and Signature of the Department Chair (if this is a block grant for class):**

*(writing the full name suffices as signature for electronic copies)*

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Name	Signature	Date
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***Additional Notes to Mentors:***

- Proposals should be typed on 8 ½ x 11 paper with at least 1 inch margins and minimum 12 pt. font size.
- Proposals must not exceed five pages, excluding the cover page, bibliography, resumes, support letter, and appendix.
- Pages must be numbered.
- Completed proposals must be submitted electronically **as a single file**, preferably in pdf format, to Elizabeth Rubens at [CRLGrant@iupui.edu](mailto:CRLGrant@iupui.edu), (317) 274-4590, Center for Research and Learning, UL 1140.