

Application for Faculty Development Program
PROJECT GRANT

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Project Title:

The Augmented Palimpsest: Engaging Students through AR Encounters with the Past

Amount Requested: **\$4,000.00**

Short Project Description:

The Augmented Palimpsest is a digital humanities tool that explores how the medium of Augmented Reality (AR) can be used in teaching medieval literature. Using Geoffrey Chaucer's *Canterbury Tales*, a fourteenth-century poem written in Middle English, the tool will deliver digital enhancements that emerge from the printed page via a smart device. They will provide the reader with linguistic, historical, and cultural contexts, thus giving students greater access to medieval material culture and history. The digital content will include 3D models of medieval artifacts and architecture, large and complex enough to be walked around and viewed from multiple angles. Because the enhancements emerge from the printed page, the tool will maintain a pedagogical emphasis on close reading while encouraging students to develop their skills in textual analysis, critical thinking, interdisciplinary study, and new media literacy. It will improve the reader's comprehension of the text by preserving the physical and kinesthetic connection to the text. The target audience for the tool includes both undergraduate students, who will encounter *The Canterbury Tales* in a survey literature course, and high school seniors, who are required to read selections of Chaucer's poem as part of the National Common Core Standards.

Tamara F. O'Callaghan
signature*

October 1, 2013
date

* By typing your name or pasting your signature in the space provided you are allowing this application to be reviewed by the Faculty Benefits Committee for a possible award. The applicant is also aware that failure to comply with the instructions may result in this proposal not being reviewed.

PART II

1. GOALS AND CRITERIA

The research supported by this sabbatical should achieve the following goals:

- To work with the current state-of-the-art AR technology, such as Daqri and Aurasma, to determine its limitations for the project.
- To design and develop a unique AR app for the project with Unity Pro with Qualcomm's Vuforia.
- To develop a more robust and complex prototype of the digital humanities tool based on our alpha-level version of *The Augmented Palimpsest*.
- To design and, if possible, create complex 3D enhancements for Geoffrey Chaucer's *Canterbury Tales*, beginning with *The General Prologue*.
- To use the AR app we design as an integral part of grant applications for external funding in order to support further development of the project.
- To identify appropriate future conference and scholarly publication venues in digital humanities for the dissemination of the project and our work with AR technology.
- To continue to develop the collaborative working arrangement between NKU, SUNY Cortland, and University of Illinois at Urbana-Champaign

The criteria for determining if these goals have been met are as follows:

- A unique AR app created using Unity Pro with Qualcomm's Vuforia that renders robust and complex 3D enhancements.
- A white paper on our development process that could be shared with other scholars in the digital humanities.
- Submission of at least one abstract on the project to a digital humanities conference.
- Draft of a grant application for external funding in which the app we created is an integral component of the application.

2. DETAILED PROJECT DESCRIPTION

Palimpsest: *A medieval manuscript page whose visible text masks an underlying original text that has been erased but may be reconstructed by means of technology.*

Augmented Reality (AR): *A medium in which digital information is overlaid on the physical world that is in both spatial and temporal registration with the physical world and that is interactive in real time.*¹

I am requesting a faculty project grant to purchase software to support my work on a collaborative digital humanities project. This project is being conducted at NKU, SUNY Cortland, and the University of Illinois at Urbana-Champaign. Digital humanities is an established academic discipline of study that explores advanced computer applications in the humanities and their implications for the field. *The Augmented Palimpsest* is a digital humanities tool that explores how the medium of Augmented Reality (AR) can be used in humanities pedagogy—specifically the teaching of medieval literature. The prototype will not only provide

¹ Alan B. Craig, *Understanding Augmented Reality* (Waltham, MA: Elsevier, 2013), 36.

3D digital enhancements for the linguistic, historical, and cultural contexts of the literary work, thus giving the students greater access to medieval material culture and history, but also create a highly immersive learning experience for students because the 3D enhancements will be large and complex enough to be walked around and viewed from multiple angles.² Because the enhancements emerge from the printed page, the prototype will maintain a pedagogical emphasis on close reading while encouraging students to develop their skills in textual analysis, critical thinking, interdisciplinary study, and new media literacy. This hybridization of the digital with the printed text will also preserve the reader's physical and kinesthetic connection to the literary work.

In collaboration with Dr. Andrea Harbin (English, SUNY Cortland) and under the guidance of Dr. Alan Craig (Associate Director of Human Computer Interaction, Institute for Computing in Humanities, Arts, and Social Science, University of Illinois at Urbana-Champaign), I will create a simple printed page with a highly detailed manuscript border set around a literary text.³ As such, the page will have the appearance of a medieval manuscript folio with a border that will, in fact, be coded⁴ with a variety of digital enhancements, including but not limited to audio, video, and graphical materials; 3D models of figures, architecture, and objects; and assessment tools, such as quizzes and writing assignments. The student will open the appropriate AR application or “app” on a smart device, such as an iPhone, iPad, or Android device, and then hold that device over individual fiducials embedded in the border to access the various enhancements coded to each fiducial (see Appendix 2 for a sample page and instructions on how to use the appropriate app to access the enhancements embedded in the sample page).

The project will initially focus on *The General Prologue* from Geoffrey Chaucer's fourteenth-century Middle English poem, *The Canterbury Tales*, as the literary text.⁵ Chaucer's poetry is included in all standard historical anthologies of English literature and taught every semester in the undergraduate survey of early British literature across English-speaking countries, including the United States. Chaucer's works are even taught in the original Middle English to high school seniors as mandated by state legislatures because exposure to the history of the English language is considered almost as valuable as exposure to Chaucer's narratives. Nevertheless, ask any instructor of the undergraduate survey of British literature, and he/she will likely tell you that students struggle significantly with reading Chaucer's works—not because the stories are

² For an example of such complex AR enhancements, see the video *Augmented Alma: The New Image of an Illinois Icon* <<http://cucfablab.org/category/tags/alma-mater>>.

³ We will be using manuscript images from the British Library since it has made its *Catalogue of Illuminated Manuscripts* available under a Public Domain mark; consequently, there are no copyright restrictions on reproduction, adaptation, republication, or sharing of the content available from the site.

⁴ Such coding is known as a “fiducial marker” or “fiducial.” A common fiducial is the QR (quick response) code that appears as a matrix barcode of square dots. We will, however, employ more complex fiducials that use the intricate patterns within the manuscript border to “hide” the coding.

⁵ Dr. Barbara Bordalejo (University of Saskatchewan) has offered her edition of *The Canterbury Tales* for the project. We have selected *The General Prologue* because the text is so commonly taught to undergraduate and high school students.

unappealing but because of the language and cultural references are so unfamiliar to the typical 21st-century undergraduate. *The Augmented Palimpsest* will provide the contexts needed for an inexperienced reader of Chaucer's poetry to understand and interpret it fully. Experiencing the AR enhancements will encourage students to return to the text in order to understand exactly what they are seeing and/or hearing.

Neither traditional print text nor electronic text in its current form for e-readers combines the stability of the print (paper) text with the versatility and multimedia advantages of the etext. *The Augmented Palimpsest* promises to address that situation by linking the physical print text to digital resources through the use of codes embedded in the print document that are then read by a smart device. The result will allow readers to harness the rich resources available digitally while still allowing the reader to work with the text from a physical, rather than electronic, copy. Maintaining this physical contact, no matter how briefly, with the printed page is important. As developmental psychologist and cognitive scientist Maryanne Wolf has argued, the act of reading changes the way the brain functions. Neurological studies have demonstrated that not only does the literate brain function differently from the non-literate brain, but the areas of the brain engaged in the act of reading depend on the type of language that is being read. For example, because Indo-European languages use an alphabet that denotes phonemes (a syllabic language), the brain of a speaker of an Indo-European language will utilize different areas of the brain than the speaker of a logo-syllabic language (one whose alphabet denotes both phonemes and concepts) such as Chinese.⁶ We are just now beginning to study how reading an electronic text might similarly affect how the brain functions.

A recent Swedish study found that students' comprehension and retention of a text were higher when they read from a print text rather than an etext.⁷ This gap in reading comprehension may be attributed to several things. Firstly, the printed text, because it is stable, allows the reader to use the location on the page of a particular section of text as a mnemonic device. Secondly, etexts do not provide the reader with a sense of the overall length and structure of the text. Finally, and perhaps most importantly, there seems to be a mind-body connection in how we learn. Neuroscience is demonstrating that our sensory perceptions influence comprehension and learning. The physical act of turning pages, which have both weight and texture, may engage our brains differently than the less tangible experience of sliding our fingers across a tablet or using a scroll bar.⁸ As Wolf notes, "There is physicality in reading . . . maybe even more than we want to think about as we lurch into digital reading—as we move forward perhaps with too little reflection. I would like to preserve the absolute best of older forms, but know when to use the new."⁹ That is the goal of the project.

⁶ Maryanne Wolf, *Proust and the Squid: The Story of Science and the Reading Brain* (New York: Harper Perennial, 2008), Chapters 2 and 3.

⁷ Anne Mangen, Bente R. Walgermo, and Kolbjørn Brønnick, "Reading Linear Texts on Paper Versus Computer Screen: Effects on Reading Comprehension," *International Journal of Educational Research* 58 (2013): 61–68.

⁸ Arnfinn Christensen, "Paper Beats Computer Screens," *Science Nordic*, March 13, 2013, <http://sciencenordic.com/paper-beats-computer-screens>.

⁹ Qtd. by Ferris Jabr "Do E-readers Inhibit Reading Comprehension?" *Salon*, 14 Apr. 2013, http://www.salon.com/2013/04/14/do_e_readers_inhibit_reading_comprehension_partner/.

AR encourages a virtual experience that is strongly rooted in a very real, physical environment. However, the full impact of AR on student learning has yet to be fully explored. Mark Billinghurst and his colleagues have conducted the most significant research on AR applications and pedagogy, including the development of the “MagicBook” (an early AR-enhanced text for children) and the tool, ARToolkit.¹⁰ AR technology has, in fact, exploded in recent months. Software companies have made AR enhancements that are high quality and accessible via smart devices easy to create. The technology has been so successful that media sources anticipate that AR apps will reach 2.5 billion downloads by 2017.¹¹

AR technology is rapidly evolving, and the capabilities of the AR tools are likely to change dramatically over the course of the next few years. Despite the numerous AR tools currently available, not all are suited to our project. We are currently considering the following applications: Aurasma, Daqri, and Unity Pro with Qualcomm’s Vuforia. All three of these applications provide the AR capabilities required by our project without any problematic licensing restrictions.¹² We will experiment with these AR tools through the course of the project in order to determine which is best suited to our pedagogical and project needs. Given the increasing popularity of Unity Pro and Vuforia to create unique and powerful apps for AR enhancements, it is essential that we work with this state-of-the-art platform and develop our own app for the project as it is most likely that we will want a unique app that works seamlessly with our 3D models rather than just creating AR enhancements that fit the requirements/limitations of existing apps, such as Aurasma and Daqri. Although both products hold considerable promise for the pedagogical applications of AR, neither company has completely followed through on its commitment to expand educational resources.

By exploring the most promising AR software currently in development, we will be able to determine the benefits of using existing software in comparison to creating our own AR tool. In addition, we will examine the pedagogical impact of AR technology, especially for the humanities. A particularly important objective of the project is to create AR artifacts that are sufficiently robust and adaptable to evolving AR tools, including the anticipated progression to such “wearable” computers as Google Glass. Students need to be ready to embrace AR technology, so we want to determine the most effective applications for the future. With that

¹⁰ Mark Billinghurst and Andreas Dünser, “Augmented Reality in the Classroom,” *Classroom* 45.7 (2012): 56-63; Mark Billinghurst, Hirokazu Kato, and Ivan Poupyrev, “The MagicBook: Moving Seamlessly between Reality and Virtuality,” *IEEE Computer Graphics and Applications* 21.3 (2001): 6-8.

¹¹ Hilary Leggatt, “AR app downloads to hit 2.5 billion by 2017,” *BizReport*, 17 Sep. 2012, <http://www.bizreport.com/2012/09/ar-app-downloads-to-hit-25-billion-by-2017.html>

¹² Those tools that can be eliminated include SnapDragonAR, which uses only QR codes and does not allow for 3D augmentation; Metaio SDK, which requires users to grant the company unlimited license to all created materials; String™ AR, which is currently only available for iOS systems and requires high contrast images for fiducials; ARToolKit, which requires cameras to capture images for AR processing and can only use simple fiducials; and Layar, which limits 3D objects to only 10,000 polygons (far too small for high quality enhancements) and requires users to grant the company unlimited license to all created materials.

knowledge, we will be better positioned to decide what AR software is best suited to our project—not just for the teaching of medieval literature, but for teaching a breadth of texts across periods and cultures.

The Augmented Palimpsest's immediate goals are to make the reading and comprehension of medieval literary texts easier and to encourage students to pursue advanced study in medieval literature at the undergraduate and even graduate levels. However, our long-term objectives are much broader. We intend to expand the mature project to include high school teachers and students in order to help them fulfill the Common Core State Standards Initiative <<http://www.corestandards.org>> in the following areas of the English Language Arts:

- Reading foundational literary works and challenging informational texts across disciplines to build knowledge, gain insights, explore possibilities, and broaden their perspective.
- Writing logical arguments, narrative, and informational text using developed research skills.
- Speaking/Listening in order to gain, evaluate, and present increasingly complex information through a variety of media.
- Focusing on language to determine word meanings, appreciate nuances of words, and steadily expand repertoire of words and phrases.
- Integrating media/technology skills as required throughout the National Common Core Standards.

Whether the audience is high school or undergraduate students, *The Augmented Palimpsest* will be student driven. In addition to the enhancements we create, we plan to leave space in the border for students to design and develop their own enhancements, including 3D (e.g. using Google SketchUp or Blender). Students and their teachers will be able to create their own reading texts that can be used to engage and instruct other students. Both Northern Kentucky University and SUNY Cortland have iPads and other smart devices that can be signed out for classroom use, so students who do not own smart devices will have access to the technology.

Without question, AR is coming into public view with such AR-enhanced publications as the 2014 *IKEA Catalogue*, *The Art of Journey* (Blue Canvas, 2012), and ColAR coloring pages and app for children that bring drawings to 3D life. I am aware that the technology is being explored for online virtual museums and that there is a major AR project to reconstruct the studio of Isabella d'Este, a leading woman of the Italian Renaissance. However, AR is used much more in the teaching of science than in the teaching of the humanities. This digital humanities project will not only address that absence, but also provide a model to teach a broad variety of texts from across history and cultures. Consequently, there is a significant degree of urgency to develop a suitable prototype since no one, to my knowledge, is working on a comparable project. It is, therefore, essential that I continue to develop *The Augmented Palimpsest* as soon as possible before someone else creates a similar tool.

3. VALUE OF THE PROJECT

(1) The Applicant's professional growth and status

The project will significantly raise my status regionally, nationally, and internationally in my primary disciplinary fields of English and medieval studies as well as in my secondary area of

digital humanities. I will be able to develop more fully my current relationship with research faculty at SUNY Cortland and the National Center for Supercomputing Applications, University of Illinois at Urbana-Champaign. I will have the opportunity to collaborate with scholars in all three disciplines across the United States, to present and publish scholarly work based on the project, to develop my pedagogical expertise, to improve approaches to teaching early British literature in high schools in the region, and to encourage students to pursue advanced study in medieval literature at the university level. If successful in the application for a NEH Digital Humanities Start-Up Grant, I will also receive significant financial support from national funding agency to develop this innovative digital humanities tool further. The project will also help me in my goal to be promoted to full professor.

(2) The scholarly community

The Augmented Palimpsest brings recent advances in AR technology to bear on humanities pedagogy, particularly the study of medieval literature. Neither traditional print texts nor etexts combine the stability of the print (paper) text with the versatility and multimedia advantages of the etext. This tool promises to address that situation by linking the physical print text to AR digital resources through the use of codes embedded in the print document that are then read by a smart device. This project also promises a significant advance in teaching humanities texts. It offers the benefits to comprehension that the printed page supplies with digital resources in a readily available format. The project can go beyond what even the most advanced etext provides by supplying readers with robust and complex 3D AR models that emerge from the page and can be experienced as almost “real,” thus giving the reader a better sense of textual material culture than a mere image on the computer can do.

(3) The Applicant's teaching and students

I have every intention of using *The Augmented Palimpsest* in my own classroom as a teaching tool for undergraduate students inexperienced with reading Chaucer's *Canterbury Tales*. I also plan to offer a future course on the digital humanities and literature that will target English education majors, English majors interested in technology, and possibly majors in history, graphic arts, and computer science who wish to explore the broader applications of technology.

(4) The University

This project and its potential impact on student learning at both the university and high school levels will garner national, if not international, attention for NKU. As a new manifestation of the etext and digital learning at both the high school and undergraduate level, it will enhance the prestige of the Department of English, College of Arts & Sciences, and the university as a whole, particularly with high schools in the region. If I am successful in securing grant funds from national agencies, such as the NEH, the project will significantly add to the grant awards held by the university. The project—with its innovative, distinctive, experiential, and transdisciplinary approach—also supports the university's new strategic plan and the goal of “academic innovation.”

(5) The non-academic community

This project specifically targets high school students and should significantly impact their understanding of early British literature and the history of the English language. As such, the

project will be a meaningful contribution to the Common Core State Standards Initiative for the English language arts, currently a major educational focus for the Commonwealth of Kentucky.

4. TIMETABLE OF ACTIVITY OR PROJECT

Note: Prior to the period of the faculty project grant, I intend to complete the online tutorials for Unity Pro and learn C#, the programming language that Unity uses. I can download Unity Free, a significantly modified version of the software for free, in order to complete the tutorials, but this version of Unity will not provide the full AR features of Unity Pro. In addition, if I were to be awarded the project grant, my work with the software will extend well beyond the grant period.

May/June 2014	Purchase Unity Pro
June to August 2014	Work with software to learn its enhanced features
September 2014 on	In collaboration with Dr. Andrea Harbin and Dr. Alan Craig, design and develop a unique app for <i>The Augmented Palimpsest</i> project that works for both iOS and Android smart devices

5. BACKGROUND OF APPLICANT RELEVANT TO THIS PROJECT

I hold a Ph.D. in medieval studies from the Centre for Medieval Studies, University of Toronto. My graduate program was highly interdisciplinary and required that I complete graduate-level courses in a variety of subjects related to the Middle Ages. These courses included medieval literature, philosophy, history, theology, canon law, liturgy, history and philosophy of science and technology, and manuscript studies. I also have reading knowledge of a number of languages, including Latin, Old French, Anglo Norman, Anglo French, Old English, Middle English, and German, and near fluency in French. I was extensively involved in the digital humanities throughout my graduate program at the University of Toronto and used TACT, a text-analysis software developed at Toronto, for my thesis. I also completed several advanced graduate courses on humanities computing at Toronto and a summer seminar on the topic at Princeton University. I have published on Old French and Middle English literature, including an article on medieval manuscript design in the work of John Gower, a contemporary of Geoffrey Chaucer. In 2011, I attended THATCamp, a digital humanities un-conference, to work on data visualization and have since presented several conference papers on using data visualization tools with literary texts and the challenges of etexts in the classroom.

This current project developed directly out of my participation in the Humanities High-Performance Computing Collaboratory, a NEH Digital Humanities Summer Institute offered in 2012 by the University of Illinois at Urbana-Champaign and the University of South Carolina. The Collaboratory provided me with a comprehensive education in various computational concentrations, including AR; design and management a digital humanities project; advanced hands-on experience with a variety of technical platforms; technical staff support to outline pilot explorations in AR; and advice in authoring a digital humanities project. Dr. Andrea Harbin (SUNY Cortland) and I met as participants in the Collaboratory and have spent the last fourteen months brainstorming, working on the initial planning of the project, exploring current and developing AR technologies, and designing an early alpha-level prototype of our concept (see Appendix 2). We presented our initial research and alpha-level prototype at two conferences in

2013: Northeast Modern Language Association meeting and The International Congress on Medieval Studies (Kalamazoo, MI). We also co-authored a scholarly article on the use of simple fiducial markers to digitally enhance early literary texts in the classroom; this article, "Hyperprint Texts and the Teaching of Early Literature," has been accepted for publication by *Studies in Medieval and Renaissance Teaching* (forthcoming 2014/2015). In August 2013, we returned to the University of Illinois at Urbana-Champaign for a week to continue working with Dr. Alan Craig (I-CHASS, UIUC) on AR methodologies and to map out our research agenda. In 2014, we will present on *The Augmented Palimpsest* at the New Chaucer Society meeting and the John Gower Society conference as well as direct a highly interactive session for the 2014 Modern Language Association Convention entitled "Text-nology Idea Jam: Doing New and Old Things with Old and New Books."

6. OTHER SUPPORT AND COMMITMENTS

(1) Past support of project:

I have received a significant support from NKU to begin this project, including Tenured Associate Professor Award, College of Arts & Sciences (2012-13)

- Provided travel support to attend the Northeast Modern Language Association meeting in March 2013 where I presented on the initial stages of the project and to visit Dr. Alan Craig at the University of Illinois at Urbana-Champaign for a week in August 2013 where he, Dr. Andrea Harbin, and I continued to develop the alpha-level prototype and drafted a grant application for a NEH Digital Humanities Start-Up Grant

Summer Research Fellowship (Summer 2013)

- Provided support to develop the alpha-level prototype of the project, organize materials for a draft grant application for external funding, and co-author with Dr. Andrea Harbin an article on our initial work for submission to a peer-reviewed journal.

Faculty Project Grant (2013-14; in progress)

- Provides financial support to purchase an iPad to test the project prototype and travel support to visit the University of Illinois at Urbana-Champaign and/or travel support for conference presentations to disseminate the project to the academic community.

(2) Applications submitted for further support:

On September 12, 2013, I submitted an application on behalf of Dr. Andrea Harbin and myself for a NEH Digital Humanities Start-Up Grant (\$60,000). We will learn in March 2014 if our application was successful. If the grant is awarded, my sabbatical will provide me with the time to work intensively on the project during six months of the grant period. I have also applied for sabbatical leave from NKU for Spring 2015 in order to work more intensively on the project.

(3) Future grant opportunities:

If Dr. Andrea Harbin and I are awarded a NEH Digital Humanities Start-Up Grant, we will apply for a NEH Digital Humanities Implementation Grant (1 to 3 years; \$100,000 to \$325,000). We also plan to seek additional funding from both internal and external sources. Internal sources include subsequent summer fellowships and project grants from our home institutions. External sources include other digital humanities funding opportunities as well as the Kentucky IEQ (Improving Educator Quality) Grant program for K-12 education and the British Library Lab Competition for innovative projects using the British Library's digital collections.

7. DETAILED BUDGET AND JUSTIFICATION OF BUDGET ITEMS

Because we are creating an app for both Apple and Android smart devices, we have no choice but to distribute the app through iTunes and Android Marketplace even if we create an app that is free (as we intend to do). In order to distribute an app built using the Unity platform via these two venues, Unity requires developers in education to purchase the full product at a 20% discount. Less expensive versions of Unity cannot be used to create apps distributed through iTunes and/or Android Marketplace.

AR software purchase at 20% educator's discount (see email in Appendix from Ms. Julie Eickhof, Regional Sales Representative for Unity products):

Unity Pro editor	\$1200.00
iOS Pro add-on	\$1200.00
Android Pro add-on	\$1200.00
Team License collaboration add-on	\$ 400.00
Qualcomm's Vuforia (free)	<u>\$ 0.00</u>
TOTAL:	<u>\$4000.00</u>

(1) Unity Pro

Unity is a powerful and professional cross-platform game engine for video game development, architectural visualizations, and interactive media installations. It has the ability to serve as a robust springboard for AR development, allowing users to create their own AR apps, and is recognized as a serious competitor to established AR applications, such as Daqri, Aurasma, and Layar.

(2) iOS Pro and Android Pro plug-ins

In order to create an app that can be used on all smart devices—namely, Apple and Android products—these plug-ins are required with Unity Pro. It will allow us to bridge Unity-created AR enhancements to an existing platform-specific environment, such as smart devices.

(3) Team License Collaboration add-on

This add-on is required for server access and version control, especially when working remotely with my colleagues at SUNY Cortland and the University of Illinois at Urbana-Champaign. It will allow us to “share” the app as we develop it so that updates happen simultaneously for all developers.

(4) Qualcomm's Vuforia

The Vuforia platform enables AR app experiences that are high quality and creative. These experiences reach across most real world environments, giving mobile apps the power to see. Vuforia is a software platform that uses top-notch, consistent, and technically resourceful computer vision-based image recognition and offers a wide set of features and capabilities, giving developers the freedom to extend their visions without technical limitations. With support for iOS, Android, and Unity 3D, the Vuforia platform allows you to write a single native app that can reach the most users across a wide range of smartphones and tablets. It can be used for free for education with Unity Pro.

PART III

1. APPENDICES

Appendix 1: Glossary of Terms

Application/App

A self-contained program or piece of software designed to fulfill a particular purpose. It is usually downloaded by the user to a smart device.

Augmented Reality (AR)

A medium in which digital information is overlaid on the physical world that is in both spatial and temporal registration with the physical world and that is interactive in real time.

Digital Humanities

The digital humanities, also known as humanities computing, is a field of study, research, teaching, and invention concerned with the intersection of computing and the disciplines of the humanities. It is methodological by nature and interdisciplinary in scope.

Fiducial/Fiducial Marker

A coded “image” that provides access to embedded digital material. They can be relatively simple, such as QR codes, or much more complex, such as the ones for this project.

Palimpsest

A medieval manuscript page whose visible text masks an underlying original text that has been erased but may be reconstructed by means of technology.

QR (Quick Response) Code

A two-dimensional barcode that holds alphanumeric information. Data is translated into code by a QR code generator and then decoded when the user scans the QR code with a smart device. It is a simple form of a fiducial marker.

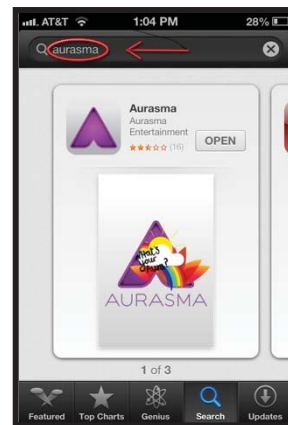
Smart Device

A mobile device such as the iPhone, iPad, Android, or other tablet device that can connect to networks/the internet. For the purposes of this project, the smart device must also be equipped with a camera.

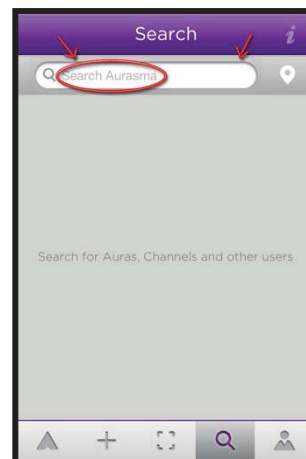
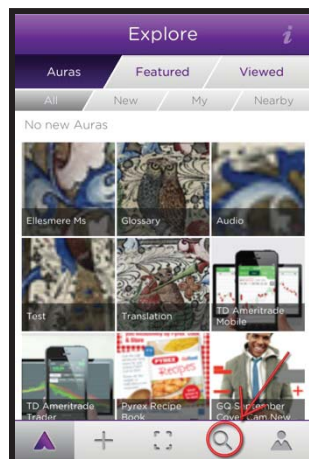
Appendix 2: Viewing the Sample Page

This appendix includes a sample page of an alpha-level prototype for our project. It demonstrates how digital resources can engage students learning to read medieval English texts and be accessed using a smart device. The sample page was created with Aurasma <www.aurasma.com>, a freely available AR program. To access the digital materials embedded in the images of the manuscript border (London, British Library, Harley MS 2887, f. 29r; courtesy of the British Library), you will need to download the Aurasma app onto your smart device and follow these directions.

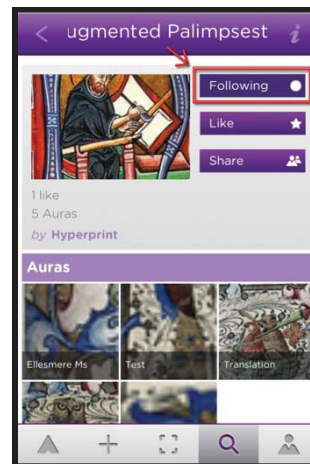
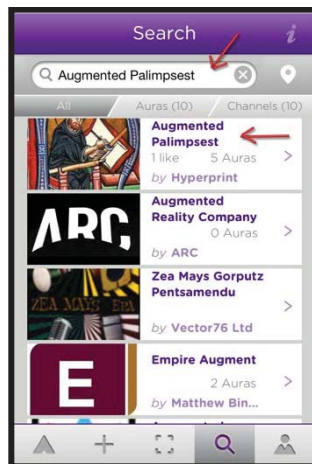
1. **Download the application.** To access the digital material embedded in the images, you will need to download the Aurasma app onto your smart device from either iTunes or Google Play.



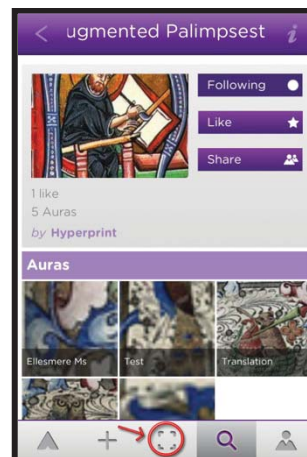
2. **Search for the “*Augmented Palimpsest*” channel.** Once you have downloaded the Aurasma application, open it and search for *Augmented Palimpsest* (click on the magnifying glass at the bottom of the application and type in your search terms).



3. **Follow the *Augmented Palimpsest* channel.** Once you have found the *Augmented Palimpsest* channel, click on the “Follow” button in the right-hand menu bar.



4. **Activate the camera function inside the Aurasma Application.** Click on the viewfinder button at the bottom of the Aurasma application. This action should bring up the application's camera function.



5. **Scan the sample document using the Aurasma application.** On the sample page, portions of the manuscript border are outlined in blue. If you scan one of these sections of the border using the Aurasma application, the relevant digital material should appear on your smart device. You can print the sample page in color or in black and white on a standard printer and then scan the fiducials. Alternatively, you can also simply scan the sample page on the computer screen.



In the sample page on the next page, we have included the following types of information:

- **Audio:** a recording of the passage
- **Image:** an image of the actual manuscript page from the Ellesmere manuscript containing the opening passage of *The Canterbury Tales* (the same passage that is produced on the page.)
- **Glossary:** a link to an online glossary of *The Canterbury Tales* so that students may translate the passage themselves.
- **Translation:** a link to a modern English translation of the passage.
- **3D AR constructions:** for this example, the Aurasma box was used to demonstrate the concept. With further AR development, more relevant and detailed 3D constructions will be created to bring the material culture of the medieval period to the students in a more realistic fashion than is possible with images alone. These 3D constructions can also be animated if desired.

Other possible augmentations include:

- Video
- Student-created artifacts such as web pages, 3D constructions, audio recordings, written assignments, etc.
- Instructor-created lesson plans, quizzes, tests, and other assessments tools.

The General Prologue

Whan that Aprille with his shoures sote
 The droghte of Marche hath perced to the rote,
 And bathed every veyne in swich licour,
 Of which vertu engendred is the flour;
 Whan Zephirus eek with his swete breeth 5
 Inspired hath in every holt and heeth
 The tendre croppes, and the yonge sonne
 Hath in the Ram his halfe cours y-ronne,
 And smale fowles maken melodye,
 That slepen al the night with open yē, 10
 (So priketh hem nature in hir corages):
 Than longen folk to goon on pilgrimages
 (And palmers for to seken straunge strondes)
 To ferne halwes, couthe in sondry londes;
 And specially, from every shires ende 15
 Of Engelond, to Caunterbury they wende,
 The holy blisful martir for to seke,
 That hem hath holpen, whan that they were seke.
 Bifel that, in that seson on a day,
 In Southwerk at the Tabard as I lay 20
 Redy to wenden on my pilgrimage
 To Caunterbury with ful devout corage,
 At night was come in-to that hostelrye
 Wel nyne and twenty in a companye,
 Of sondry folk, by aventure y-falle 25
 In felawshipe, and pilgrims were they alle,
 That toward Caunterbury wolden ryde;
 The chambres and the stables weren wyde,
 And wel we weren esed atte beste.
 And shortly, whan the sonne was to reste, 30
 So hadde I spoken with hem everichon,
 That I was of hir felawshipe anon,
 And made forward erly for to ryse,
 To take our wey, ther as I yow devyse.

Appendix 3: Bibliography

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Appendix 4: Letters of Support

These letters supported the project for an application for a NEH Digital Humanities Start-Up Grant submitted September 12, 2013. They include the following:

- a. Letter of commitment and support from Dr. Andrea Harbin (SUNY Cortland)
- b. Letter of commitment and support from Dr. Alan Craig (University of Illinois at Urbana-Champaign)
- c. Letter of commitment and support from Dr. Gail Wells, Provost (NKU)
- d. Letter of support from Dr. Martha Driver (Pace University)

Letter of Commitment to serve as Co-Principal Investigator for *The Augmented Palimpsest*

As Co-Principal Investigator, I hereby agree to devote my research time to *The Augmented Palimpsest* project during the grant period. This will include part-time research during the course of the school year, and full-time research during the summer months.

My responsibilities will include: providing general project design; creating and managing the project website with blog; conducting classroom implementation of project; integrating user feedback to refine project; writing blog postings and an article, and presenting project results.

If funded, the term of the project and my participation as the Co-Principal Investigator will be from June 1, 2014, to November 30, 2015.



Andrea R. Harbin
Assistant Professor of English
SUNY Cortland

September 11, 2013

Date

National Center for Supercomputing Applications
1008 NCSA Building
1205 West Clark Street
Urbana, IL 61801



September 10, 2013

Dear Professors O'Callaghan and Harbin,

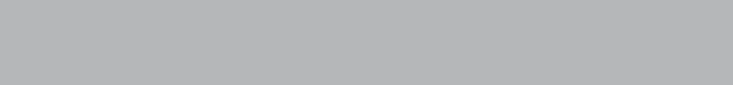
I am pleased to write this letter of support and commitment for your proposal titled: **The Augmented Palimpsest: Engaging Students through AR Encounters with the Past**

This project will be a tremendous benefit to those who are interested in using augmented reality for teaching topics in the humanities.

I am committed to fulfilling the tasks outlined in the proposal in the event that it is awarded.

Please contact me at acraig@ncsa.uiuc.edu or 217-244-1988 if I can be of any assistance.

All my best,


Alan B. Craig, PhD
Associate Director, Human-Computer Interaction
Institute for Computing in Humanities, Arts, and Social Science
Research Scientist
National Center for Supercomputing Applications
Humanities Specialist
Extreme Science and Engineering Discovery Environment
University of Illinois

VICE PRESIDENT FOR ACADEMIC AFFAIRS AND PROVOST

Lucas Administrative Center 830 | tel 859.572.5360 | fax 859.572.6121

September 9, 2013

Office of Digital Humanities
National Endowment for the Humanities
1100 Pennsylvania Avenue NW
Washington, DC 20506

To Whom It May Concern:

This letter is written in support of the NEH Digital Humanities Start-Up Grant proposal entitled "The Augmented Palimpsest: Engaging Students through AR Encounters with the Past." The activities described in the proposal will enhance the following goals of our University:

- Northern Kentucky University (NKU) is a teaching and learner-centered institution committed to transdisciplinary approaches to pedagogy and research. The University has demonstrated a commitment to supporting the humanities, including the establishment of *Viva Humanities*, a semester-long celebration of the valuable skills and competencies developed through studying and working in the humanities.
- With the opening of a \$46 million College of Informatics building in the fall 2012, NKU is committed to supporting informatics in all disciplines, including the humanities.
- NKU has an established record of supporting K-12 education in the region and is strongly committed to supporting faculty projects that enhance and develop K-12 pedagogy, including the National Common Core Standards for the English Language Arts at the secondary school level.

The University is committed to the support that will be given by the Department of English as well as the College of Arts & Sciences. The Department and College are well positioned to address the activities presented in this proposal and will work collaboratively to meet the project's objectives. The goals are realistic, and the activities are appropriate for the project. Dr. Tamara O'Callaghan, one of our most outstanding faculty members, has demonstrated that she can achieve at the highest level and is well prepared and positioned to collaborate with faculty at SUNY Cortland and the University of Illinois at Urbana-Champaign. The work they are doing is critically important as they capitalize on the exciting possibilities inherent in the technology of today to reach students and ensure they are engaged in learning in the humanities.

I appreciate the serious consideration that you will give the proposal. I know that, if funded, this innovative project will help create the next generation of teachers and students of medieval literature.

Sincerely,



Gail W. Wells,
Vice President for Academic Affairs and Provost



September 8, 2013

Office of the Digital Humanities
National Endowment for the Humanities
1100 Pennsylvania Avenue NW
Washington, DC 20506

Recommendation for *The Augmented Palimpsest* Proposal

I am writing to recommend the proposal submitted by Tamara F. O'Callaghan and Andrea R. Harbin to build *The Augmented Palimpsest*. The award of an NEH Digital Humanities Start-Up grant will allow these two highly qualified professors to enhance the teaching of medieval literature with a variety of virtual simulations that will encourage students to visualize and experience the meaning of Chaucer's Middle English text of the *Canterbury Tales* and to comprehend its historical contexts on a number of memorable levels.

The Augmented Palimpsest will engage students in the study of medieval literature by employing technology to recreate aspects of medieval culture and to elucidate aspects of fourteenth-century life that might seem quite distant. There is a general resistance from undergraduate students to learn to read Chaucer's works in the original language and explore the cultural contexts because his poetry is perceived as too hard, too time consuming, and simply not much fun. This project takes an innovative and sophisticated approach by enabling students to experience models of medieval cultural artifacts, maps, audio recordings and videos, among other media. Like readers in the Middle Ages, the students will also be "glossing" the text they read. They are actively, rather than passively, reading and empowered to contribute to the existing glosses, or commentaries, as they become participants in a dialogue about the meaning and interpretation of narrative.

I am familiar with Dr. O'Callaghan's use of technology in her teaching. In fact, she introduced me to the virtual environment, Second Life, several years ago, and I now use it extensively in my own medieval literature classes. My classes emphasize close reading of literature and history; students build and recreate themselves as actors in a virtual world, playing the roles of medieval characters or historical figures onstage, using scripts they write themselves that are based on the literary texts read for class. The Augmented Reality project proposed by Dr. O'Callaghan and Dr. Harbin provides many of the benefits of the virtual experience while keeping the students tethered to the print text, an important consideration in teaching literary works. In particular, the immediacy with which students can access the Augmented Reality enhancements is impressive and appealing. As the co-founder of the Early Book Society for the study of manuscripts and printing history, I further appreciate their efforts to replicate the experience of reading Chaucer in manuscript; the incorporation of manuscript borders around the text will give students the sense of reading a medieval page as well as introduce them to book history.

This project takes an innovative approach to teaching medieval literature, one that embraces emerging technology yet keeps the student grounded in the text. It has the real potential to enhance pedagogical approaches to literature not just for undergraduates but for high school students, too. I strongly recommend this project for NEH support, and I very much look forward to trying the prototype with my own students.

Sincerely,



Martha W. Driver
Distinguished Professor of English
and Women's and Gender Studies

From: [Julie Eickhof](#)
To: [Tamara O'Callaghan](#)
Subject: Re: Request for quote on education price
Date: Monday, September 30, 2013 8:52:34 PM
Attachments: [TeamLicense Overview 2013-09.pdf](#)
[UnityPro_EduPricing_AsOf20130905.png](#)

Hi Tamara,

Very nice chatting with you just now! As promised, here's our current pricing table for edu licensing (watermarked).

We have both perpetual and term/annualized licenses available for our Suites (depending on how long you need it and what budget makes sense), which are definitely going to be the best overall value when it comes to prototyping/testing and publishing to devices (but not through a distribution outlet like the App Store).

These edu suites include the core Unity Pro editor, plus all the add-ons: iOS Pro, Android Pro, and BlackBerry Pro for mobile publishing, as well as the per-seat Team License collaboration add-on for server access and version control (very handy, especially if you'll be working with the other person remotely!).

For "real" publishing to devices (i.e., app-creation/-distribution through any of the online App Stores), the commercial versions (non-watermarked, but with a nice 20% academic discount!) will be the way to go:

- Unity Pro editor - \$1200 (\$1500 retail)
- iOS Pro add-on - \$1200 (\$1500 retail)
- Android Pro add-on - \$1200 (\$1500 retail)
- Team License collaboration add-on - \$400 (\$500 retail)

Glad to discuss further when you're not in the middle of classes—but great that we could at least catch up a little bit today!—and feel free to send over any other questions.

Kind regards,

Julie Eickhof | Account Executive

AL • AR • AZ • CO • IL • IN • KS • KY • LA • MO • MS • NM • NV • OH • OK • TN • TX • UT • Mexico • Guatemala

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Skype julie_unity3d

Unity Technologies • 345 Broadway, Suite 200, San Francisco, CA 94133 •
unity3d.com

On Mon, Sep 30, 2013 at 5:29 PM, Tamara O'Callaghan <OCALLAGHANT@nku.edu> wrote:

Dear Julie,

2. VITA

Tamara F. O'Callaghan

EDUCATION

- Ph. D. 1995, Centre for Medieval Studies, University of Toronto, concentrating in Middle English and Old French literature with Old English, medieval philosophy, and Latin palaeography as minor fields.
- M.A. 1988, Department of English, University of Toronto, with courses on medieval literature, Milton, eighteenth-century poetry, and modern formalist criticism.
- B.A.(Hons) 1986, Victoria College, University of Toronto, specializing in English literature.

DISSERTATION

"Love Imagery in Benoît de Sainte-Maure's *Roman de Troie*, John Gower's *Confessio Amantis*, and Geoffrey Chaucer's *Troilus and Criseyde*."

Thesis defended successfully January 31, 1995; degree conferred June 8, 1995.

LANGUAGES

English; near fluency in French; reading proficiency in Old French, Anglo-Norman, Old English, Latin, and German.

EMPLOYMENT

Associate Professor, Department of English, NKU	2005 to present
Assistant Professor, Department of Literature & Language, NKU	1999-2005
Visiting Assistant Professor, Department of Literature & Language, NKU	1997-99
Sessional Instructor, Department of English, University of Toronto	1996-97
Sessional Instructor, Department of English, York University, Toronto	Spring 1996
SSHRCC Postdoctoral Fellow, University of Toronto	1995-97

TEACHING EXPERIENCE

Department of Literature and Language, Northern Kentucky University

- Introduction to Linguistics (ENG 381),
- History of the English Language (ENG 382)
- Chaucer (ENG 401)
- Middle English Literature (ENG 402)
- Old English (ENG 403)
- Arthurian Literature (ENG 404)
- Literary Criticism (ENG 350)
- Introduction to English Studies (ENG 250)
- Literature Across History (ENG 214)[online and f2f formats]
- Western World Literature I (ENG 206)
- Understanding Literature (ENG 200)
- College Writing and Advanced College Writing (ENG 101 and 291) [online and f2f formats]

TEACHING INTERESTS

Primary: Chaucer, Gower, medieval romance, late 14th and 15th-century literature, digital humanities, electronic literature, and critical theory

Secondary: Old English, historical linguistics, Arthurian revival, writing/composition

AWARDS AND HONOURS

Faculty Project Grant, NKU (2013-14)

Summer Research Fellowship, NKU (Summer 2013)

Tenured Associate Professor Award, College of Arts & Sciences, NKU (2012-13)

Faculty Project Grant, NKU (2012-13)

NEH Digital Humanities Summer Institute (Summer 2012)

SPARK Award (shared), College of Arts & Sciences, NKU (2011-12)

Collaborative Faculty-Student Research Grant, NKU (2006)

Faculty Project Grant, NKU (2004-5)

SREB Faculty Travel Grant Award (Summer 2003)

Summer Research Fellowship, NKU (2002)

NEH Summer Seminar—Virtual Participant (Summer 2001)

Technology Innovation Mini-Grant, NKU (2001)

Faculty Project Grant, NKU (2000-01)

Centre for Medieval Studies Postdoctoral Fellowship (1996-1997)

George C. Metcalf Fellowship, Victoria College, University of Toronto (1995-1996)

- concurrent with second year of SSHRC Postdoctoral Fellowship

SSHRC Postdoctoral Fellowship (2 years: 1994-1996)

The Lyla Mary Guest Hugill Memorial Scholarship, Victoria College (1993-1994)

The St. George's Society of Toronto Scholarship (1993-1994)

Sponsored by the University of Toronto to attend a two-week seminar at Princeton University on "Electronic Texts in the Humanities;" one of thirty scholars and librarians selected worldwide to participate in the program (Summer 1993)

SSHRC Doctoral Fellowship (2 years: 1991-1993)

University of Toronto Open Fellowship (1990-1991)

Pontifical Institute of Mediaeval Studies Student Fellowship (Summer 1990)

Colin Chase Bursary, Centre for Medieval Studies (1989-1990)

PEER-REVIEWED JOURNAL ARTICLES

"Hyperprint Texts and the Teaching of Early Literature." *Studies in Medieval and Renaissance Teaching*; forthcoming 2014/2015.

"Viewing the Glass as Half Full: The Potential of Partnerships between Water Utilities and Small Universities/Colleges" (co-authored with Judy Westrick and Clifford Shisler), *American Water Works Association Journal* 93.5 (2001): 54-56.

PEER-REVIEWED BOOK CHAPTERS

"The Fifteen Stars, Stones and Herbs: Book VII of the *Confessio Amantis* and its Afterlife." *John Gower Trilingual Poet: Language, Translation and Tradition*. Ed. Elisabeth Dutton, John Hines, and R.F. Yeager. Oxford: D.S. Brewer, 2010. 139-56.

"Tempering Scandal: Eleanor of Aquitaine and Benoît de Sainte-Maure's *Roman de Troie*," *Eleanor of Aquitaine: Lord and Lady* New York: Palgrave Macmillan, 2003. 307-17.

REVIEW

Review of John Glaser's *Middle English Poetry in Modern Verse* (Hackett Publishing, 2007) for *Kentucky Philological Review* 23 (2008).

DIGITAL HUMANITIES PROJECT: THE AUGMENTED PALIMPSEST

The Augmented Palimpsest is a digital humanities tool that explores how the medium of Augmented Reality (AR) can be used in teaching medieval literature.

OTHER PROJECTS (in progress)

A complete English translation of Benoît de Sainte-Maure's *Roman de Troie*, based on the standard scholarly edition of the poem by Léopold Constans (Paris: *Société des Anciens Textes Français*, 1904-12).

"The Rhizomatic Structure of Medieval Narrative" (article)

"Tongue to Tongue: An Afro-Caribbean Response to Chaucer's *Canterbury Tales*" (article)

CONFERENCE PAPERS (selected)

"The Virtual Palimpsest: Teaching Students to Read Middle English," International Congress on Medieval Studies, Western Michigan University, Kalamazoo, MI (May 2013)

Gower's Historiographic Turn: Jephthah's Daughter," International Congress on Medieval Studies, Western Michigan University, Kalamazoo, MI (May 2013)

"Virtual Palimpsest: How Evolving Technologies Aid Student Understanding of the History of the Book," Northeast Modern Language Association Convention, Boston (March 2013)

"Gower and the Digital Wor(l)d, International Congress on Medieval Studies, Western Michigan University, Kalamazoo, MI (May 2012)

"Virtually Medieval," International Congress on Medieval Studies, Western Michigan University, Kalamazoo, MI (May 2012)

"Problems and Solutions for Teaching English Literature Online" (with Karina McGill), KY Converging Trends Conference, NKU (May 2011)

"BiblioTech: The eBook in Humanities-Based Writing-Intensive Courses" (with Karina McGill), 17th Annual Sloan Consortium, Orlando, FL (November 2011)

"Out of Africa: The Cultural Translation of Chaucer's *Canterbury Tales*," Modern Language Association Convention, Philadelphia (December 2009)

"Mapping the Trojan World in Gower's Poetry," New Chaucer Society Congress, Swansea, Wales (July 2008)

"Gower, The Pseudo-Scientist," International Conference of the John Gower Society, QML, London (July 2008)

"Back to the Future: Neomedievalism and *The Dark Age of Camelot*," 22nd Annual International Conference on Medievalism, University of Western Ontario, London, Ontario, Canada (October 2007)

"The Rhizome and Gower's Errant Narrative in the *Confessio Amantis*," 42nd International Congress on Medieval Studies, WMU, Kalamazoo, MI (May 2007)

"Tongue to Tongue: An Afro-Caribbean Response to Chaucer's *Canterbury Tales*," New Chaucer Society Meeting, New York, NY (July 2006)

"Rhizome Theory and Medieval Romance: Redefining a Narrative Structure," Ohio Medieval Colloquium, OSU, Columbus, OH (March 2005)

3. PREVIOUS FBC AWARDS:

Faculty Project Grant (2013-14; in progress)

This project grant will support testing on smart devices of the early alpha-level prototype of *The Augmented Palimpsest*, further development of the prototype, travel to the University of Illinois at Urbana-Champaign to work with Dr. Alan Craig on the AR enhancements, and travel to various conferences, including the 2014 New Chaucer Society meeting in Reykjavik, Iceland, to present and disseminate the project.

Faculty Summer Fellowship (2013)

This summer fellowship supported substantial work on the concept development of an early alpha-level prototype of *The Augmented Palimpsest* and the writing of an article with Dr. Andrea Harbin (SUNY Cortland) on the use of simple fiducial markers to digitally enhance early literary texts in the classroom.

Scholarly Activity

- Concept development of an early alpha-level prototype of *The Augmented Palimpsest*; see sample page in Appendix 2 of this application.
- Conference poster presentation: "The Virtual Palimpsest: Teaching Students to Read Middle English," International Congress on Medieval Studies, Western Michigan University, Kalamazoo, MI (May 2013).
- Co-authored, peer-reviewed article: "Hyperprint Texts and the Teaching of Early Literature," accepted for publication by *Studies in Medieval and Renaissance Teaching* (forthcoming 2014/2015).
- Drafted an application for a NEH Digital Humanities Start-Up Grant (\$60,000) for submission on September 12, 2013.

Faculty Project Grant (2012-13)

This project grant supported the cataloguing and, wherever possible, digital photography of the miscellany of medieval manuscript fragments scattered around the Northern Kentucky/Cincinnati region as part of a national project.

Scholarly Activity

- I visited local libraries, archives, and museums to catalogue and photograph medieval manuscript fragments.

Public Engagement

- Speaker for the 6@6 Lecture Series, "Lost and Found: Cincinnati's Medieval Manuscript Fragments," Behringer-Crawford Museum, Covington, KY (March 2012).

Faculty Sabbatical (Spring 2008)

My sabbatical provided me with the opportunity to work several projects, including a translation of a culturally significant Old French poem into English, an article on the medieval manuscript tradition of a Middle English poem that was eventually published as a peer-reviewed book chapter, research on medieval manuscript studies, and pedagogical training in new technologies for online teaching.

Scholarly Activity

- I wrote the introduction for my draft translation of Benoît de Sainte-Maure's 12th-century poem *Le Roman de Troie* and completed initial revisions to the translation.
- I conducted research on medieval scientific manuscript traditions and medieval astronomy as part of a study of a 14th-century Middle English poem, the *Confessio Amantis* by John Gower.
- Conference presentation: "Gower, the Pseudo-Scientist: Book VII of the *Confessio* and Its Afterlife," First International Congress of the John Gower Society, Queen Mary College, University of London, London, England, United Kingdom (July 2008).
- Conference presentation: "Mapping the Trojan World in Gower's Poetry," 16th International Congress of the New Chaucer Society, University of Wales, Swansea, Wales, United Kingdom (July 2008).
- Peer-reviewed book chapter: "The Fifteen Stars, Stones, and Herbs: Book VII of the *Confessio* and its Afterlife," *John Gower Tri-Lingual Poet: Language, Translation and Tradition*. Ed. Elisabeth Dutton, John Hines, and R.F. Yeager. Oxford: D.S. Brewer, 2011. 139-156.

Teaching Enhancement

- During my sabbatical, I attended the weekly Faculty Learning Community meetings on technology offered by the College of Arts & Sciences and completed two online courses through the Sloan Consortium in new web tools for online pedagogy; as a direct result of this training, I eventually developed five online courses (three for Integrative Studies; two for English).
- My conference presentations in the United Kingdom provided me with the opportunity to collect pedagogical artifacts, most notably photographs, of medieval England and Wales that I continue to use in my medieval literature courses.

Sabbatical Dissemination

- Campus presentation: I gave a formal talk on my sabbatical work for the English Faculty Symposium (November 2009).

Faculty Project Grant (2004-05)

This project grant supported the creation of a web-based archive of digital recordings that preserve a large set of speech accents and dialect patterns from the tri-state area.

Scholarly Activity

- Website creation: I created an online interactive web archive of digital recordings.

Student Mentorship

- I directed two student research assistants in creating the set paragraph for digital recording, preparing the IRB application, and designing the archive website.

Teaching Enhancement

- Students from the Introduction to Linguistics (ENG 381) and History of the English Language (ENG 382) courses digitally recorded subjects reading aloud the set paragraph for the archive; the experience provided students with the opportunity to learn the protocols and implementation of field work in linguistic study.

Faculty Summer Fellowship (Summer 2002)

This summer fellowship supported substantial initial research on cyber theory (a postmodern theoretical approach that explores cyberspace, technology, and the information society) with respect to medieval narrative and allowed me to develop a new major research interest that I continue actively to explore.

Scholarly Activity

- Conference presentation: “Cyber Worlds and Virtual Games in *Sir Gawain and the Green Knight*,” International Congress on Medieval Studies, Western Michigan University, Kalamazoo, MI (May 2002).
- Conference presentation: “Simulacra/Simulation in *Sir Gawain and the Green Knight*,” Popular Culture Conference, Austin, TX (March 2003).
- Conference presentation: “*Dark Age of Camelot*: Medieval Computer Gaming,” International Congress on Medieval Studies, Western Michigan University, Kalamazoo, MI (May 2003).
- Special Session organizer and chair: The Rhizome and the Errant Self: Approaches to the (Neo)Medieval Narrative, Modern Language Association (MLA) Convention, Philadelphia, PA (2004).
- Conference presentation: “The Rhizome and the Grail,” Illinois Medieval Association Meeting, Southern Illinois University, Carbondale, IL (February 2005).
- Conference presentation: “Malory’s *Morte d’Arthur* and the Rhizomatic Grail Quest,” New Medievalisms II, University of Western Ontario, London, Ontario, Canada (March 2005).
- Conference presentation: “Rhizome Theory and Medieval Romance: Redefining a Narrative Structure,” Ohio Medieval Colloquium, Ohio State University, Columbus, OH (March 2005).
- Conference presentation: “The Rhizome and Gower’s Errant Narrative in the *Confessio Amantis*,” 42nd International Congress on Medieval Studies, Western Michigan University, Kalamazoo, MI (May 2007)
- Conference presentation: “Back to the Future: Neomedievalism and *The Dark Age of Camelot*,” at the 22nd Annual International Conference on Medievalism, University of Western Ontario, London, Ontario, Canada (October 2007)
- Conference presentation: “Virtually Medieval,” 45th International Congress on Medieval Studies, Western Michigan University, Kalamazoo, MI (May 2010).

Faculty Project Grant (2000-01)

This project grant (in collaboration with Roxanne Kent-Drury, English) supported the creation of the *Issues* Research Website, an archive of student-created webpages on topics explored in English composition and advanced writing courses.

Teaching Enhancement

- Website creation: The website was created and maintained for four years until it was superseded by new technology.
- The webpages served as a starting point for research on related topics and were used by classes in composition and professional writing in the Department of English (formerly Literature & Language) as well as by students at other universities.