

The 2016 DDI Call for Proposals

Innovation Funding

Co-sponsored by Duke's Office of Information Technology (OIT) and Center for Instructional Technology (CIT), the Duke Digital Initiative (DDI) advances awareness and use of new and emerging technologies in support of teaching and learning at Duke.

During 2016, DDI will support the following areas:

1. Exploration of new and emerging technologies;
2. Faculty attendance at innovative technology conferences; and
3. Innovative visualizations.

Deadlines: Proposals will be accepted and reviewed throughout the year. *Expect a minimum of a month for review.*

1 Exploration of new and emerging technologies

We seek to support the use or exploration of new and emerging technologies not routinely used for undergraduate education at Duke or that might be applied to undergraduate education in new ways. See examples below. A proposal does not need to be tied to a specific undergraduate course, but should state how the lessons learned (good and bad) from your project will contribute to undergraduate education at Duke.

Proposals that are accepted will receive funding, as well as pedagogical and technical advice and consultations. Support for formal assessment, when appropriate, will be available.

Instructors, graduate students, and librarians are eligible to submit proposals in this category. We encourage students who have a project idea to discuss the idea with a Duke instructor who might be interested in submitting a proposal.

Funding Limits: Most awards will provide up to \$5,000 for a project. However, we welcome proposals for larger projects requiring up to \$25,000 in support. Funds may be used to purchase hardware or software, and/or cover the cost of student or time-limited employees. Funds may be available for other kinds of expenses that are detailed in the proposal.

Funded Project Requirements: If your project is funded, you will be required to 1) write a blog post about your experiences to be posted on the DDI and CIT blogs; and 2) conduct a

discussion that will be open to the campus community. The discussion should consist of a brief presentation about the project goals and outcomes, followed by a discussion.

Examples of new and emerging technologies in education:

- 360 degree video and photos (<http://www.360-foto.dk/carlbloch/>)
- 3D scanning using consumer-level products (<http://www.independent.co.uk/life-style/gadgets-and-tech/british-museum-releases-scans-of-artefacts-to-let-you-3d-print-your-own-museum-at-home-9837654.html>) and (<https://www.lib.ncsu.edu/stories/3d-scanning-artifacts-digital-history>)
- 3D printing in the arts, humanities, and social sciences (<http://www.scientificamerican.com/article/three-3d-printing-anthropologists-use-printing-technology-to-model-fossils/>)
- Virtual reality, especially when viewable in consumer-level devices such as the Oculus Rift and Google Cardboard (<https://www.google.com/get/cardboard/>)
- Gaming (interactive computer games, gamification that uses technology, escape the room games that incorporate technology such as the Geek Escape Room at <http://www.cipherscape.com/>)
- Glasses-free 3D video
- Drones
- Wearable technologies such as smart watches, fitness trackers, and smart textiles
- Motion capture
- Self-published course materials that are more than just text and/or video
- Robots such as Double Robot (<http://www.doublerobotics.com/>)
- Microsoft's HoloLens (<https://www.microsoft.com/microsoft-hololens/en-us>)
- Augmented reality (https://en.wikipedia.org/wiki/Augmented_reality)
- Internet of Things (http://www.cisco.com/c/dam/en/us/solutions/collateral/industry-solutions/education_internet.pdf)

2 Faculty Attendance at Innovative Technology Conferences

We invite applications for support to attend a conference outside of your normal academic discipline where you can see new technologies and engage with exhibitors and other attendees about the potential to use those technologies in teaching and learning.

Faculty (tenure-track and POP) working with undergraduate students are eligible to submit proposals in this category.

Faculty whose conference proposals are funded will be required to 1) write a blog post about their experiences for the DDI blog and 2) conduct a discussion that will be open to the campus community (date to be scheduled during the award process). The discussion should consist of a brief presentation about 1 to 4 topics of interest from the conference as well as a discussion question about each to help open a dialog among attendees.

Funding Limits: Awards of up to \$1,500 can be requested to support conference registration, travel, and/or hotel expenses.

Example Conferences:

- Neurogaming (<http://www.neurogamingconf.com>)
- ACM Special Interest Group on Computer Graphics and Interactive Techniques (SIGGRAPH) (<http://s2014.siggraph.org/>)
- South by Southwest Interactive (<http://sxsw.com/interactive>)
- World Maker Faire - NYC - (<http://makerfaire.com/>)
- East Coast Game Conference (<http://ecgconf.com/>)
- Consumer Electronics Show (<http://www.cesweb.org/>)

3 Innovative Visualizations

Proposals in this category should focus on the development of one or more visualizations to support learning in a specific Duke undergraduate course. Assessment of the visualization (with the support of the assessment specialist in CIT and Duke Libraries' Data and Visualization Services staff) will be required and should be incorporated into your early project timeline. Visualizations may be static (images, maps), animated, or interactive. They must attempt to solve a learning problem and therefore support improved learning in the course.

Instructors of any Duke undergraduate course are eligible to apply in this category. We encourage students who have a project idea to discuss the idea with a Duke instructor who might be interested in submitting a proposal.

Visualization production: *Please note that all visualization proposals must specify the person(s) completing the technical visualization work.* Consultants with Duke Libraries' Data and Visualization Services can meet with you before you submit your proposal to ensure your idea is feasible; offer advice about hardware, software, and other technology solutions; help you define a budget for your proposal; and can suggest ways to find people to help with the implementation. However, they **will not** be able to provide implementation support for you.

Funding Limits: We expect the budget of most projects in this category to be \$2,500 or less. Larger projects will be considered for especially complex projects. Funds may be used to pay for software licenses, hardware, students, time-limited employees, or contractors.

Funded Visualization Requirements: If your visualization proposal is funded, you will be required to 1) write a blog post about your experiences to be posted on the DDI and CIT blogs and 2) conduct a discussion that will be open to the campus community. The discussion should consist of a brief presentation about the problem you wanted to solve and the results of the assessment, followed by a discussion.

Example Visualizations:

- Predator/prey simulation: <http://worrydream.com/InteractiveExplorationOfADynamicalSystem/>
- Medical imaging segmentation game: <http://blog.eyewire.org/about/>
- Economic inequality animation: <http://inequality.is/>
- Lives of painters static visualization: <https://www.flickr.com/photos/accurat/8961090259>
- Chart of electromagnetic radiations: <https://www.flickr.com/photos/llnl/9403051123/>
- A breathing earth: <http://uxblog.idvsolutions.com/2013/07/a-breathing-earth.html>
- Crochet coral reef: <http://crochetcoralreef.org/>
- Understanding prime numbers: <http://exploratorium.edu/blogs/tangents/composite-patterns>

Some General Visualization Ideas:

- Complex molecular structures to help students understand scale and structure
- 3D anatomical models
- Illustrations of geological formations
- Wind flow over a forest
- Visual explanation of a process or algorithm, like a Fourier transform
- An interactive system that shows how changing the parameters of a model changes the output
- Showing historical collaborations over time and space
- Animations demonstrating statistical concepts

Application and Review Process for All Proposals: Applications may be submitted at any time during 2016. Proposals will be subject to an initial review followed by a face-to-face interview with the proposer(s). (The face-to-face interview may be waived for conference proposals.) Expect at least a month for the review process to be completed.

Application Preview (to help you prepare): https://dukedigitalinitiative.duke.edu/wp-content/uploads/CFP_2016_Prep_Doc.docx

Application: https://duke.qualtrics.com/SE/?SID=SV_3w0RYoilNO9hjeJ

Planning Resources Available at Duke

You can draw on several Duke resources before submitting your proposal:

- CIT staff can help you think through pedagogical issues and share examples. (Contact: cit@duke.edu)
- OIT staff can help determine how much technical support your project is likely to require and share examples. (Contact: ddi-requests@duke.edu)
- Your departmental or school IT staff may be able to help with your proposal or project.
- If your project involves visualization, consider consulting with Duke Libraries' Data and Visualization Services (<http://library.duke.edu/data/>).