**PRE-PROPOSAL COVER SHEET**

Use this cover sheet format for the University of Illinois Extension and Outreach Initiative. Submit cover sheet and pre-proposal in one PDF file to the following email address: Extension-initiative@illinois.edu

Proposal Title: Enhancing Economic Development in Illinois with Digital Tech Hub Creativity Studios

Principal Investigator Name: Jon Gant

Title: Research Associate Professor

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Principal Investigator Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit Head Name: Alan Renear

Unit Head Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Abstract (250 words or less):

Tech Hub Creativity Studios provide an exploratory community design space for advanced digital design, building and performance – including computer-aided design, audio/video production, data visualization, and prototype fabrication. These Do-It-Yourself, low-cost modern-day inventor’s workshops, continually abuzz with cutting-edge technologies, progressive ideas and passionate people not only enable communities to explore and develop their ideas but also build capacity in digital design and manufacturing throughout Illinois. Enabling this kind of innovation and creativity is key to 21st Century technological and economic development. The Illinois Informatics Institute, along with faculty from Engineering, Fine and Applied Arts, Liberal Arts and Sciences, Media, and Library and Information Science propose to collaborate with UI Extension educators to develop themed mobile Tech Hub Creativity Studios: electronics/robotics, fabrication, textiles, digital art, and gaming/AV recording. University of Illinois faculty and staff are also committed to working with communities to both learn from and share their expertise with the community. While the mobile units will rotate among Extension offices, Tech Hub staff will also work with communities to develop community-based and supported studios throughout the state.

The Illinois Informatics Institute, along with faculty from Engineering, Fine and Applied Arts, Education, Business, Liberal Arts and Sciences, Media, and Library and Information Science propose to collaborate with UI Extension to develop DigiTech Hub Creativity Studios throughout Illinois. Digital Tech Hubs are innovation workshops that provide the public with access to advanced computer controlled fabrication and digital media technologies. Visitors to DigiTech Hubs learn how to use a small-scale digital production workshop for computer-based innovation, design and fabrication using computer-aided design, audio/video production, data visualization, and prototype fabrication (e.g., 3-D printing, laser cutting/engraving, and other computer-controlled milling/routing/cutting).

Relevance – This project will enhance economic development by building capacity in digital manufacturing and production tools and techniques in communities, creating a statewide platform to diffuse innovations from the UI Digital Manufacturing initiative. Collaborative, community-based digital design and rapid fabrication workshops are increasingly recognized as crucial and outstanding contributors to innovation. Business leaders and researchers point to creativity as a key 21st century skill to support problem-solving and innovation.1 Folkstad & Hayne (2011) write “innovation and creativity are […] the engine of technological and economic development.” DigiTech Hubs are designed to operate in public libraries, schools, and community centers. This helps break down the digital divide by cost-effectively bringing cutting edge technology to underserved urban and rural areas.

Design – DigiTech Hub is a community-campus interdisciplinary engagement effort based on the C-U Community Fab Lab (http://cucfablab.org), a small-scale workshop for computer-based innovation, design and fabrication. DigiTech Hub faculty and staff will work with Extension staff to 1) design and build mobile creativity units focused on one of 5 themes – electronics/robotics, fabrication, textiles, digital art, and gaming/AV recording – to be shared among Extension sites, 2) advise on development of permanent Creativity Studios, and 3) develop curriculum to teach the application of the tools in a Creativity Studio. For example, MineCraft can be used to teach programming skills, or sustainable farming, or urban design. Game design teaches logical thinking, and incorporate fabrication, multi-media and program-ming. Fashion design can incorporate computer-aided design, electronics and textile production.

Anticipated Outcomes – DigiTech Hubs provide a space to collaboratively play, discover, create and test digital media technologies, allowing patrons to dream up, design, and create. Ultimately, these modern-day inventor’s workshops, continually abuzz with cutting-edge technologies, ideas and passionate people, build capacity in digital design & manufacturing, and entrepreneurship. Specifically, outcomes include train-the-trainer style workshops based the 5 themes, collaborative development of permanent community-based and operated studios, and curriculum materials to be used as tutorials for adults and workshops/camps for youth.

Outreach Strategies – A Creativity Studio is a rich environment where jam sessions and impromptu interactions result in learning, and where creativity is nurtured and celebrated. A participatory design approach to instruction means the public works side-by-side with engineers, artists, designers, inventors, and entrepreneurs. Participation of numerous and diverse faculty and staff, coupled with the facilitation expertise of Extension staff, enables the possibility of in-service learning for students to work IN and WITH the communities across Illinois, both physically face-to-face and hands-on, and remotely via video conferencing. Thus the University offers the community not only the technology and information we produce, but the guidance and mentoring required to further creativity and learning, while the community offers the University new challenges, diverse perspectives, and is the base on which we build the future of Illinois.

**Endnotes**

1 See for example, Partnership for 21st Century Skills, 2004, [http://www.education.com/ reference/article/Ref\_Creativity](http://www.education.com/%20reference/article/Ref_Creativity); Folkstad & Hayne, 2011, [http://www.computer.org/csdl/ proceedings/hicss/2011/4282/00/01-13-08.pdf](http://www.computer.org/csdl/%20proceedings/hicss/2011/4282/00/01-13-08.pdf); Runco, 2004, “Creativity” *Annual Review of Psychology*, **55**:657-687.)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| PERSONNEL | |  | Rate | Months | Year One | Year Two | Total |
|  | Gant, Jon - PI |  | 10045 | 1.00 | 10,045 | 10,346 | 20,391 |
|  | Wolske, Martin |  | 8049 | 0.80 | 6,440 | 6,633 | 13,073 |
|  | Bievenue, Lisa |  | 6566 | 0.80 | 5,253 | 5,411 | 10,664 |
|  | Ginger, Jeff |  | 4167 | 5.00 | 20,833 | 21,458 | 42,291 |
|  | subtotal |  |  |  | 42,571 | 43,848 | 86,419 |
| GRA | | 1 | 1991 | 11.00 | 21,901 | 22,558 | 44,459 |
|  |  |  |  |  |  |  |  |
| FRINGE BENEFITS | |  | 42.94% |  | 18,280 | 18,828 | 37,108 |
|  |  |  | 6.36% |  | 1,393 | 1,435 | 2,828 |
|  |  |  |  |  |  |  |  |
| TRAVEL (in-state) | |  |  |  | 10,080 | 10,080 | 20,160 |
|  |  |  |  |  |  |  |  |
| MATERIALS & SUPPLIES | |  |  |  | 64,190 | 6,770 | 70,960 |
|  |  |  |  |  |  |  |  |
| Faculty Stipends | |  | $2000 ea |  | 18,000 | 20,000 | 38,000 |
| TOTAL REQUEST | |  |  |  | 176,415 | 123,519 | 299,934 |

Personnel – The PI, Gant, BLURB BIO, will direct the entire project and supervise all staff. Bievenue, Asst. Director at the Illinois Informatics Institute with extensive experience developing interdisciplinary research and outreach projects, will coordinate campus-wide participation of faculty, staff and students. Ginger, who has extensive research and outreach experience in community engagement, will develop curriculum units, facilitate community-involved engagement, and oversee assembly of mobile labs. The Graduate Research Assistant will work directly with Ginger on all aspects of the project. Stipends are budgeted for participating faculty, who will be expected to advise on projects, mentor UIUC students, and visit at least one Extension site per year.

Travel – Project staff will travel up to 10 times per year in 2-person teams to Extension offices, estimated at $532 per trip ($5320). Up to 10 faculty/student teams will travel to Extension offices per year. We estimate 5 trips at $364 and 5 with an overnight at $588 (total $4760).

Materials and Supplies include printing of training guides & handouts ($2500), flash/CD/DVD media for participants ($11,040) and 2 each of the following mobile units (total 10 mobile labs), all include computers, specialty software, miscellaneous materials, and lockable carts.

* Mini Fab Lab with electronic cutters, 3D printer, Kinect scanner ($5050)
* AV Production with mics, guitars, drums, MIDI, camcorders, cameras, screen ($5480)
* Digital Art with scanners, drawing electronic tablets, DSLR camera ($7100)
* Small Electronics with soldering stations, Arduinos, tools, Raspberry PIs ($5000)
* Textile Arts with Arduino minis, electronic sewing machines, specialty fabrics ($6080)