

## Launching the TALENT Network to Promote the Training of Archival & Library Educators w. iNnovative Technologies

The University of Maryland iSchool seeks a \$375K 2-year Laura Bush 21<sup>st</sup> Century Librarian (LB21) Implementation Grant with 1:1 cost share towards the scaling and broadening of an existing collaborative Computational Thinking (CT) Piloting Network. The TALENT Network will address LB21 Program Goal 3: “Enhance the training and professional development of the library and archival workforce to meet the needs of their communities,” with primary objective 3.5: “Enhancing digital collection management and access to information and resources through retrospective and born-digital content”. Our goal is to change the current MLIS-level educational culture by building a resilient national network that supports educators and practitioners in training the next generation of digital library and archives leaders. The TALENT Network will accomplish three major objectives: (1) scale up our current IMLS CT Piloting Network ([RE-246334-OLS-20](#)) by doubling the educator network to include diverse educators in multidisciplinary iSchools that have a focus on adjacent disciplines (e.g., computing, engineering, education, and data science) where there are substantial needs for archivists and librarians with digital and computational skills, (2) broaden training through alliances with established Learning Sciences networks, and (3) address the social and ethical concerns that arise from Computational and Algorithmic Thinking.

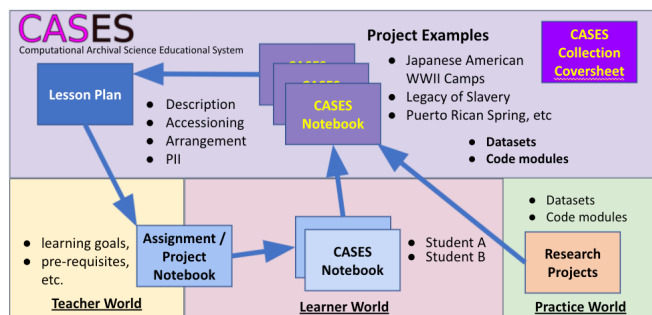
### 1. Project Justification

As federal agencies such as NARA are planning an [all-digital](#) records future, there is a critical need to strengthen digital and computational literacy and training for future librarians and archivists and practitioners. Recognizing acute “skills and management gaps in libraries” (“[Shifting to Data Savvy: The Future of Data Science in Libraries](#)”), IMLS has recently invested in a number of initiatives to enhance the training and professional development of the library and archival workforce to meet the digital needs of their communities, including doctoral and master’s training initiatives that include professional development of library and archives professionals. Funded initiatives include Drexel’s [LEADING](#) initiative to create a nationwide cohort of LIS doctoral students and early to mid-career librarians, and our own [CT Piloting Network](#) at the U. Maryland, a project aimed at supporting MLIS training through a collaborative network of educators and practitioners that evaluates the sharing and dissemination of computational case studies and lesson plans. This also builds on an earlier LB21 National Forum grant (see [Final Report](#) - Oct. 1, 2020). CT is described as a form of problem solving that uses, modeling, decomposition, pattern recognition, abstraction, algorithm design, and scale ([Wing, 2006](#)). The argument our proposal makes for integrating CT into library and archival science parallels the case for its inclusion in STEM classrooms and is motivated by the need to anchor digital archival and library practices in computational concepts and abstractions, not just ephemeral tools.

### 2. Project Work Plan

In support of our CT Piloting Network, in 2020 we launched the [Advanced Information Collaboratory \(AIC\)](#), a virtual [research network](#) meant to be a vehicle for bringing together Cultural Institutions and LIS educators.

**State of the CT Piloting Network:** This is the perfect timing for us to seek future funding, one year from the end of our current project in order to activate the next set of relationships needed to build up and sustain a durable national effort. To this effect, we are convening an [Online Mini-Summit](#) on Oct. 15, 2021 inviting potential collaborators of our future TALENT Network to discuss expanded training opportunities. By early CY2022, we will have reached our main objectives, with the generation of around 24 Jupyter Notebooks centered on the unique diverse collections of our 5-member Cultural Institution network, with a portfolio of racial- and social- justice collections which include themes of erasure in archival representation which disproportionately affect people of color. Our CT Piloting Network has successfully demonstrated the creation of Jupyter Notebooks by [teachers](#), [students](#), and [practitioners](#). We have conducted preliminary assessments and evaluations of these educational products and we have started publishing these notebooks through an Educational Platform called [CASES](#). See [project website](#) for accomplishments. Six members of the CT Piloting core group will transition to the TALENT Network: experts in digital archives (Mark Conrad and Richard Marciano), lesson plan evaluation and learning sciences (Phil Piety), project management (Michael Kurtz), computational thinking (Bill Underwood), and library software integration (Greg Jansen).



The [AIC](#) has primarily focused on technical and collaborative objectives so far, and through the TALENT Network we will now address its other objectives of training, learning, and ethics:

- I. Scale to Multidisciplinary iSchools:** the current CT Piloting Network includes an Educator Network (EN) comprised of 4 LIS-centric schools (*U. Maryland, Kent State, U. Missouri, Clayton St.*). In the TALENT Network, we will double the number of schools, adding diverse partners from 4 multidisciplinary LIS schools that emphasize computing,

engineering, education, and cultural analytics. While these fields are adjacent to LIS, they are domains MLIS graduates are increasingly likely to work in. These new nodes will include: Drexel College of **Computing & Informatics** (Prof. Adelaida Alban Medlock, Head of Undergraduate Affairs), Indiana U. Bloomington School of Informatics Computing and **Engineering** (TBD), UCLA School of **Education & Information Studies** (Prof. Safiya Umoja Noble), and U. Washington iSchool & **Cultural Analytics** (Prof. Melanie Walsh, [“Introduction to Cultural Analytics and Python”](#)).

**II. Broaden Training through Alliances with Established Learning Sciences Networks:** we will develop broader alliances with established disciplinary networks in *Learning Sciences*. Strategic partners include:

- a. Prof. Rogers Hall, Vanderbilt Dept. of Teaching and Learning [with a focus on [bridging learning in urban extended spaces](#) by mapping archival media onto the city neighborhoods they describe].
- b. Prof. Andrea Chiba, UC San Diego, Cognitive Science Dept. [partnering with her Global Science of Learning for Education Network ([GSoLEN](#)) (funded through [NSF AccelNet-Design: Harnessing Global Science Networks to Accelerate Cultures of Learning](#)), and specializing in global development, learning, education, equity, and policy)]. Dr. Chiba’s work focuses on learning and memory and training the brain to eliminate cognitive bias.



**III. Address the Social and Ethical Concerns that Arise from Computational and Algorithmic Thinking:**

We will form a strategic partnership with the [Center for Critical Internet Inquiry \(C2I2\)](#) at UCLA, led by Dr. Safiya Umoja Noble (author of [Algorithms of Oppression](#)), in order to integrate the types of social and ethical issues that Computational and Algorithmic Thinking elicit.



#### Project Activities:

- a. Development of Computationally-Enhanced Curricula:** Multidisciplinary iSchool partners will collaborate with LIS-centric partners to embed existing Jupyter Notebooks into their curricula and develop new Case Studies and Lesson Plans for training in computing, engineering, education, and cultural analytics domains (Led by Mark Conrad).
- b. Participation in Learning Sciences Networks:** Active engagement in the SLaMLab and GSoLen Learning networks to explore ways of extending the TALENT Network activities into urban community network events and engaging with information scientists from the global science of learning (Led by Richard Marciano & Phil Piety).
- c. Promoting Ethical Information Access and Use:** Working with experts from the UCLA C2I2, we will identify key social and ethical topics to promote through new Case Studies and Lesson Plans for use and training purposes (Led by Safiya Umoja Noble).
- d. Development of a Learning Education Platform:** that expands on our current CASES prototype (Led by Greg Jansen).
- e. Jupyter Book Publication of Computational Training Materials:** [Jupyter Book](#) is an open-source project for building beautiful, publication-quality books and documents from computational material. We will hold a series of sprint sessions to co-develop this resource (Led by Melanie Walsh).

#### 4. Diversity Plan

Our diversity plan covers the TALENT Network itself, Recruitment of students, and choice of Collections:

*Network:* All of the new partners in our multidisciplinary iSchool network are either Hispanic, African-American, or Female and also represent new diverse disciplinary connections (computing, engineering, education, and cultural analytics).

*Recruitment:* We will work with Prof. Safiya Umoja Noble, who holds a joint-appointment at UCLA in African American Studies and Information Studies, to ensure that we engage with students from under-represented populations.

*Collections:* In our CT Piloting Network we emphasized developing Jupyter Notebooks around a unique cluster of collections representing the full American experience, which we called “Re-presenting America”. We will further broaden these collections to include content that further elevates social and ethical concerns, including urban renewal, redlining, and discussions on reparations.

#### 5. Project Results

Our major contribution will be the creation of a durable diverse and multidisciplinary national community network focused on training archival and library educator leaders. By the fall of 2024, we aim to be one of the premier community networks for supporting the teaching of computational thinking in LIS with both curricular resources for students and instructors (notebooks and lesson plans), digital collection management and access strategies, exemplars, and a learning education platform.

We request a total budget of \$375K over a two-year period (Aug. 1, 2022-Jul. 31, 2024) with a 1:1 cost-share match of \$375K. The UMD budget of \$123K supports 6 people. A budget of \$146K is allocated to 9 project partners. The 39.5% overhead is \$106K.