

Sera Thornton, PhD

Health Sciences Library System
University of Pittsburgh
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Summary:

A biology PhD by background and instructional design professional, I have a special interest in STEM education, evidence-based teaching and learning techniques, and the role of visuals and multimedia in learning. I am currently an Instructional Designer at the Health Sciences Library System of the University of Pittsburgh; I work with librarian instructors to foster discovery, scholarship, and research at the Health Sciences schools of Pitt through robust HSLS educational programs. I previously worked at the University of Pittsburgh Center for Teaching and Learning. Prior to joining the Pitt team, I spent three years with MITx designing, developing, and implementing biology MOOCs and other digital education resources, including illustrating and animating educational video following evidence-based principles, and publishing research into learner behaviors.

Education:

Massachusetts Institute of Technology, Cambridge, MA

MITx Digital Learning Lab Fellow, Office of Digital Learning (now MIT Open Learning)

Postdoctoral Teaching Associate, Department of Biology

Massachusetts Institute of Technology, Cambridge, MA

Ph.D. in Biology

Thesis: The role of Polycomb-mediated epigenetic regulation in embryonic stem cell differentiation

The Pennsylvania State University, State College, PA

B.S. in Biochemistry and Molecular Biology with Honors and Distinction, and

B.S. in International Studies with High Distinction, and minor in French and Francophone Studies

Schreyer Honors College

Appointments & Positions, Education and Instructional Design:

University of Pittsburgh

Health Sciences Library System

Instructional Designer, Appointment Stream Faculty

University of Pittsburgh

University Center for Teaching and Learning

Learning Scientist and Teaching Consultant

Reporting to Michael Arenth, Director of Educational Technology

University of Pittsburgh

University Center for Teaching and Learning

Instructional Designer

Massachusetts Institute of Technology

MITx Digital Learning Lab Fellow, Office of Digital Learning

Postdoctoral Teaching Associate, Department of Biology

Thornton, CV

Other Experience:

Massachusetts Institute of Technology

Instructor

- 7.S390 *Creating Digital Learning Media in Biology*
- 7.S391 *Quantitative Biology Workshop*

Broad Institute of MIT and Harvard

MOOC Course Team Member

Massachusetts Institute of Technology

OpenCourseWare Scholars Contributor

Massachusetts Institute of Technology

Teaching Assistant

- 7.014 *Introductory Biology*. Taught by Prof. Graham Walker and Prof. Penny Chisholm.
- 7.03 *Undergraduate Genetics*. Taught by Prof. Chris Kaiser and Prof. Aviv Regev.

Massachusetts Institute of Technology

Department of Biology

Graduate Research Assistant

Primary Investigator: Prof. Laurie Boyer

The Pennsylvania State University

Department of Biochemistry and Molecular Biology

Undergraduate Research Assistant

Primary Investigator: Prof. Pamela Mitchell

Carnegie Mellon University

Department of Biological Sciences

Undergraduate Research Assistant

Primary Investigator: Prof. Gordon Rule

Selected Publications and Presentations, Education:

1. "University of Pittsburgh's Open Lab." Exemplar in [2022 EDUCAUSE Horizon Report | Teaching and Learning Edition](#). p.28.
2. Wright JD and **Thornton S**. "[Teaching at Pitt: Weekly feedback videos can enhance engagement in remote teaching](#)." University Times, Feb 11 2021.
3. **Thornton S** and Fanselow E. "[Students Design 3D Brain Models to Learn and Teach Neuroanatomy](#)." Video presented at International Symposium on Academic Makerspaces, 2019. Published in the [Proceedings of the 4th International Symposium on Academic Makerspaces](#).
4. **Thornton S** and Fanselow E. "Students create 3D models of brain structures to enhance visualization of neuroanatomy." Poster presented at the Gordon Conference for Visualization in Science and Education, 2019.
5. **Thornton S**. "Lightboard: A Tool for Creating Educational Videos with Minimal Post-Processing." Poster presented at the Pittsburgh Regional Faculty Symposium, 2019.
6. **Thornton S** and Wiltout ME. "Competency-Based Testing in a Biology MOOC" Presented at Learning with MOOCs Conference, 2017.

7. **Thornton S**, Riley C, and Wiltout ME. “Criteria for Video Engagement in a Biology MOOC.” Poster presented at the Gordon Conference for Visualization in Science and Education, 2017.
8. **Thornton S**, Riley C, and Wiltout ME (2017). “Criteria for Video Engagement in a Biology MOOC.” [Proceedings of the 2017 ACM conference on Learning @ Scale](#).
9. **Thornton S**, Riley C, and Wiltout ME. “What Makes an Engaging Video? A Case Study from a Biology MOOC.” MOOC Makers conference, 2016.
10. **Thornton S** and Wiltout ME (2015). “[Teaching MIT Students to Think Like Cell Biologists: A Visual Approach](#).” Education Xpress (defunct).

Publications, Biology:

1. **Thornton SR**, Butty VL, Levine SS, and Boyer LA (2014). [Polycomb Repressive Complex 2 regulates lineage fidelity during embryonic stem cell differentiation](#). PLoS ONE 9 (10), e110498.
2. Mazzoni EO, Mahony S, Peljto M, Patel T, **Thornton SR**, McCuine S, Reeder C, Boyer LA, Young RA, Gifford DK, and Wichterle H (2013). [Saltatory remodeling of Hox chromatin in response to rostrocaudal patterning signals](#). Nat. Neurosci. 16, 1191–1198.
3. Surface LE*, **Thornton SR***, and Boyer LA (2010). [Polycomb group proteins set the stage for early lineage commitment](#). Cell Stem Cell 7, 288–298.

* Asterisk indicates equal contribution

Selected Awards, Activities, Service, and Professional Development:

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| 2022-present | Provost’s Standing Committee on Open Educational Resources, interim chair |
| 2022-present | Pitt Instructional Design Partners group, member |
| 2019-present | Provost’s Standing Committee on Open Educational Resources, committee member |
| 2022 | Awarded Phase 4 Pitt Seed Grant for Nursing Information Literacy Education; co-PI on interdisciplinary group project (\$75,000) |
| 2019-2022 | Pitt Medical School Curriculum Reform Task Force member, Phase 1; Foundations Subcommittee member, Phase 2. |
| 2021-2022 | Pitt Year of Data and Society Steering Committee member, Awards Subcommittee member, Awards Council member |
| 2019-2021 | Pitt Data Science Task Force member; member of Subcommittee on Benchmarking; co-chair of Subcommittee on Goal 3: Graduate and Advanced Education |
| 2020 | Attended Learning @ Scale conference |
| 2019 | Attended International Symposium on Academic Makerspaces |
| 2019 | Attended Gordon Conference for Visualization in Science and Education |
| 2019 | Attended EDUCAUSE Learning Initiative Annual Meeting |
| 2019 | Awarded Pitt Seed Grant for “ A Makerspace on the Move ,” team member on Open Lab proposal (\$50,000) |
| 2017 | Attended EDUCAUSE Annual Conference |
| 2017 | Attended Gordon Conference for Visualization in Science and Education |
| 2016 | Co-organized <i>Strategies for Video and Media Development</i> session at MOOC Makers conference. |
| 2016 | Completed Simon Initiative LearnLab Summer School, Carnegie Mellon University, Educational Data Mining track |
| 2009 | Awarded Theresa Keng Graduate Teaching Award, MIT Department of Biology |

Selected Press Coverage of Projects:

University of Pittsburgh Open Lab

- [“Open Lab opens doors for new skills for Pitt students to cultivate.”](#) Pitt News, 2/24/2022
- [“Learning through Making at Open Lab.”](#) @Pitt, 2/26/2020

MITx Biology MOOCs

- [“8 courses from MITx ranked among Class Central’s “Best of All Time” 2021 list.”](#) MIT Open Learning, 9/27/21
- [“Competency exam certificate now available for MITx Introduction to Biology course.”](#) MIT News, 1/3/2017
- [“Online Courses Have Reached a Turning Point that Should Scare Colleges.”](#) Business Insider, 6/11/2013

Software and Programming Skills:

- Significant expertise in:
 - Adobe Illustrator & After Effects
 - Airtable
 - Blackboard
 - Canvas
 - edX
 - Panopto
 - Qualtrics
- Working familiarity with:
 - Adobe Premiere Pro, Photoshop, Dreamweaver, Audition
 - Autodesk Maya
 - Coursera
 - H5P
 - PyMOL
 - Python
 - R
 - XML
 - Tinkercad