**CURRENT RESEARCH PROJECTS**

*Please list YX-related projects you would like listed on the website. Please include project title and a brief description. If you would like a photo included, please upload it to the Projects folder on Box and include a caption here.*

\*\*Should we add notable/selected presentations for each project as well?\*\*

**BodyVis (**[**https://makeabilitylab.cs.washington.edu/project/BodyVis/**](https://makeabilitylab.cs.washington.edu/project/BodyVis/)**)**

Project Date: October 2012 - present

Brief Description: BodyVis is a wearable computing and electronic textiles (e-textiles) technology for learning about anatomy and physiology, and for supporting children’s scientific inquiry skills. BodyVis combines embedded sensing and interactive visualization to reveal otherwise “invisible” parts and functions of the human body. As the wearer engages in an activity, physiological phenomena are manifested on the wearable visualization in real-time. In addition, we present a new mixed-reality tool called SharedPhys, which tightly integrates real-time physiological sensing, whole-body interaction, and scientific inquiry to support new forms of embodied interaction and collaborative learning.

YX Lab Faculty: Tammy Clegg

Associated Faculty: Jon Froehlich

Associated Students: Leyla Norooz (UMD)

Sponsor(s): HCIL, UMD Makeability Lab

Awards & Recognition:

Notable Publications:

* Norooz, L., Mauriello, M. L., Jorgensen, A., McNally, B., & Froehlich, J. E. (2015). BodyVis: A New Approach to Body Learning Through Wearable Sensing and Visualization. Proceedings of CHI 2015 Conference.
* Kang, S., Norooz, L., Oguamanam, V., Plane, A., Clegg, T. L., & Froehlich, J. E. (2016). SharedPhys: Live Physiological Sensing, Whole-Body Interaction, and Large-Screen Visualizations to Support Shared Inquiry Experiences. Proceedings of IDC 2016 Conference
* Clegg, T. L., Byrne, V., Norooz, L., Kang, S., & Froehlich, J. E. (2018). Physiological Investigations with Live Physiological Sensing and Visualization Tools. Extended Abstract Symposium, Proceedings of ICLS 2018.

**ConnectedLib (**[**https://connectedlib.ischool.uw.edu/**](https://connectedlib.ischool.uw.edu/)**)**

Project Date: 2015 – 2019

Brief Description: Con­nect­edLib helps librar­i­ans incor­po­rate dig­i­tal media into their work with youth to pro­mote con­nec­tions across learn­ing con­texts. Fac­ulty mem­bers from the library and infor­ma­tion sci­ence (LIS) schools at the Uni­ver­sity of Wash­ing­ton and Uni­ver­sity of Mary­land are team­ing with pub­lic libraries to cre­ate pro­fes­sional development resources that sup­port librar­i­ans in their efforts to lever­age new media technolo­gies and pro­mote youth’s con­nected learn­ing expe­ri­ences in libraries. Our pub­lic library part­ners — [Prov­i­dence Pub­lic Library](http://www.provlib.org/), [Seat­tle Pub­lic Library](http://www.spl.org/), and [Kit­sap Regional Library](http://www.krl.org/)  — serve a vari­ety of tra­di­tion­ally under­served youth pop­u­la­tions, includ­ing rural, immi­grant, and low-income youth.

YX Lab Faculty: Mega Subramaniam

Associated Faculty: Katie Davis (University of Washington)

Associated Students: Kelly Hoffman (UMD), Milly Romejin-Stout (UW), Saba Kawas (UW), Ligaya Scaff (UW)

Sponsor: IMLS

Awards & Recognition:

Notable Publications:

* Subramaniam, M., Scaff, L., Kawas, S., Hoffman, K. M., & Davis, K. (2018). Using technology to support equity and inclusion in youth library programming: Current practices and future opportunities. *Library Quarterly.* *88*(4), 1-17.  Available at: <https://www.journals.uchicago.edu/doi/pdfplus/10.1086/699267>
* Subramaniam, M.(2016). Designing the library of the future for and with teens: Librarians as the “connector” in connected learning. *Journal of Research on Libraries and Young Adults, 7*(2), Available: <http://www.yalsa.ala.org/jrlya/wp-content/uploads/2011/02/Subramaniam_Designing-the-Library_Final.pdf>
* Hoffman, K. M., Subramaniam, M., Kawas, S., Scaff, L., & Davis, K. (2016). *Connected libraries: Surveying the current landscape and charting a path to the future*. College Park, MD; Seattle, WA: The ConnectedLib Project. Available at: <http://go.umd.edu/5fh>

**Kid Safety (**[**https://pearl.umd.edu/projects/kids-safety/**](https://pearl.umd.edu/projects/kids-safety/)**)**

Project Date:

Brief Description: Kid Safety aims to conduct research that helps equip elementary school kids with the skills they need to stay safe online focusing on the following research questions:

* What are the most pressing online safety skills to teach kids about from the perspective of kids, parents, and teachers?
* What do elementary school aged kids, their parents, and teachers perceive as the most appropriate ways to engage kids in online privacy and security issues?
* How should information about privacy and security issues be imparted to kids (e.g., via a game, a  
  parent-teacher-child conversation facilitating app, or educational materials)?
* What are the design implications for technologies that teach parents, kids, and teachers about online safety at home and school?

YX Lab Faculty: Tammy Clegg

Associated Faculty: Jessica Vitak (UMD), Marshini Chetty (Princeton)

Associated Students: Priya Kumar (UMD)

Sponsor(s): Google

Awards & Recognition:

Notable Publications:

* Kumar, P., Chetty, M., Clegg, T., & Vitak, J. (2019). Privacy and security considerations for digital technology use in elementary schools. Proceedings of the 2016 Annual Conference on Human Factors in Computing Systems (CHI) (pp. forthcoming). New York: ACM. <https://doi.org/10.1145/3290605.3300537>
* Kumar, P., Vitak, J., Chetty, M., Clegg, T. L., Yang, J., McNally, B., & Bonsignore, B. (2018). Co-designing online privacy-related games and stories with children. Proceedings of 2018 ACM Interaction Design and Children (IDC) Conference (pp. 67-79). New York: ACM. <https://doi.org/10.1145/3202185.3202735>

**KidsTeam (https://hcil.umd.edu/children-as-design-partners/)**

For KidsTeam, please use the content that is currently listed on its HCIL web-page, [linked here](https://hcil.umd.edu/children-as-design-partners/). We’ll probably be updating some text and photos, but this is good for now. Thanks much!

Project Date: ongoing

Brief Description: KidsTeam is a research team made up of children and adults who work together at the University of Maryland’s Human-Computer Interaction Lab (HCIL) to co-design technologies that support children’s learning and play. KidsTeam research enhances our understanding of intergenerational design techniques and our efforts to co-design technologies that are more relevant to children’s interests and needs. The University of Maryland’s KidsTeam is the first intergenerational Cooperative Inquiry design team of its kind and serves as a model of this kind of cooperative work.

YX Lab Faculty: Beth Bonsignore

Associated Faculty:

Associated Students:

Sponsor(s): College of Information Studies (UMD’s iSchool), University of Maryland Institute for Advanced Computer Studies (UMIACS)

Awards & Recognition:

Notable Publications:

**NatureNet (**<http://research.nature-net.org/>)

Project Date:

Brief Description: Partnering with the University of Colorado, Boulder and the University of North Carolina, Charlotte, we are using the Community-Driven Environmental Projects  (C-DEP) model (a multi-university research endeavor funded by the NSF AISL program) to engage members of diverse communities in local nature and environmental conservation projects of their choosing. We use NatureNet, a multi-touch technology platform that uses mobile devices and a website to enable participants to develop and carry out projects that support their own informal learning and foster positive scientific dispositions, to accomplish these goals by adapting and designing new features for NatureNet.

YX Lab Faculty: Tammy Clegg

Associated Faculty: Jenny Preece (UMD), Mary Lou Maher (UNC, Charlotte), Tom Yeh (University of Colorado, Boulder)

Associated Students: Marina Cascaes (UMD), Elizabeth Warrick (UMD), Daniel Pauw (UMD), Jingook Kim (UNC, Charlotte), Jacqueline Cameron (University of Colorado, Boulder)

Sponsor(s): NSF AISL

Awards & Recognition:

Notable Publications:

* Boston, C., Clegg, T., Pauw, D., Preece, J., Warrick, E., Abdellahi, S., Christian, T., Grace, K., Maher, M. L., Cameron, J., and Yeh, T. (2017).  Supporting Environmental Stewards’ Needs with Technology. In Companion of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW '17 Companion). ACM, New York, NY, USA, 151-154.
* Clegg, T., Preece, J., Pauw, D., Warrick, E., and Boston, C. (2016). Environmental Learning through the Lens of Affinity Spaces: Transforming Community Members into a Community Force. International Conference of the Learning Sciences Proceedings, 2016, pp. 851-854.
* Preece, J., Boston, C., Yeh, T., Cameron, J., Maher, M., and Grace, K. (2016). Enticing Casual Nature Preserve Visitors into Citizen Science via Photos. In Proceedings of the 19th ACM Conference on Computer Supported Cooperative Work and Social Computing Companion (CSCW '16 Companion). ACM, New York, NY, USA, 373-376.

**Safe Data, Safe Families (**[**https://safedata.umd.edu/**](https://safedata.umd.edu/)**)**

Project Date: 2016 - present

Brief Description: Through Safe Data, Safe Families, we will work with families to develop resources and training to help them develop safer privacy and security habits and to work through this process as a family. This project will provide data and resources that can be used by librarians to inform their practices in helping families in sensitive online transactions and by libraries to facilitate digital privacy and security skills education for these families.

YX Lab Faculty: Mega Subramaniam

Associated Faculty: Jessica Vitak (UMD)

Associated Students: Yuting Liao (UMD), Priya Kumar (UMD), Shandra Morehouse (UMD)

Sponsor: IMLS

Awards & Recognition:

Notable Publications:

* Vitak, J., Liao, Y., Subramaniam, M., & Kumar, P. (2018). “I knew it was too good to be true”: The challenges economically disadvantaged Internet users face in assessing trustworthiness, avoiding scams, and developing self-efficacy online. *Computer Supported Collaborative Work (CSCW) Conference*. Available at: <https://vitak.files.wordpress.com/2018/10/vitak_etal-2018-cscw-lowses.pdf>

**Science Everywhere (**<https://hcil.umd.edu/science-everywhere/>)

Project Date:

Brief Description: Science Everywhere is an [NSF funded](http://www.nsf.gov/awardsearch/showAward?AWD_ID=1441523) research study aimed at understanding how technology can engage entire communities in science learning. We utilize a design-based research approach in which we co-design innovative science learning technology with families, teachers, and leaders in a community, implement that technology in the community, and then redesign that technology in an iterative design process. Broadly, this study will contribute to theory on connected learning by developing an understanding of how to connect science learning at home, school, and community spaces with technology. This study also aims to contribute to our understanding of parent-child learning, interactive display design, and social media for learning.

YX Lab Faculty: Tammy Clegg, Elizabeth Bonsignore,

Associated Faculty: June Ahn (UC, Irvine), Jason Yip (University of Washington)

Associated Students: Daniel Pauw (UMD), [Judith Uchidiuno](http://judithu.com/) (CMU), [Austin Beck](http://austinbbeck.com/) (UMD), [Kelly Mills](https://web.archive.org/web/20170810062923/http:/www.education.umd.edu/TLPL/programs/Science/people.html) (UMD), [Caroline Pitt](https://ischool.uw.edu/people/phd/pittc) (UW iSchool)

Sponsor(s): NSF

Awards & Recognition:

Notable Publications:

* Ahn, J., Clegg, T., Yip, J., Bonsignore, E., Pauw, D., Cabrera, L., Hernly, K., Pitt, C., Mills, K., Salazar, A., Griffing, D., Rick, J., & Marr, R. (2018). Science Everywhere: Designing public, tangible displays to connect youth learning across settings. In Proceedings of the 36th Annual ACM Conference on Human Factors in Computing Systems – CHI 2018. New York, NY: ACM. [[PDF](http://ahnjune.com/wp-content/uploads/2018/05/paper278.pdf)]
* Pauw, D. A., Clegg, T. L., Ahn, J., Bonsignore, E., Yip, J. C., & Uchidiuno, J. (2015). Navigating Connected Inquiry Learning with ScienceKit. Presented at the Computer Supported Collaborative Learning 2015. [[PDF](http://ahnjune.com/wp-content/uploads/2015/03/CSCL-2015-Paper-DP-TC-JA-EB-JY-UB.pdf)]
* Yip, J. C., Ahn, J., Clegg, T. L., Bonsignore, E., Pauw, D. & Gubbels., M. (2014). “It helped me do my science.” A case of designing social media technologies for children in science learning. Proceedings of the 13th International Conference of Interaction Design and Children (IDC 2014). [[PDF](http://ahnjune.com/wp-content/uploads/2014/04/idc2014-Social-Media-Tech.pdf)]

**Scratch Encore (**[**https://www.canonlab.org/scratch-encore**](https://www.canonlab.org/scratch-encore)**)**

Project Date: Fall 2017 - Spring 2020

Brief Description: In this three-year research-practitioner partnership, we are partnering with the Chicago Public school district to design, develop, and evaluate advanced Scratch-based CS instructional materials for upper elementary students. The project seeks to answer the question: “How can we create advanced elementary Computer Science instructional materials that value advancing equity equally with student learning outcomes?” While there are several introductory CS curricula for 4th-6th grade classrooms, existing options for advanced elementary CS are expensive commercial offerings or free, ad-hoc activities, a situation which feeds inequity by requiring either money or experienced teachers to do well. This disproportionately hurts learners in under-resourced schools that often serve populations historically underrepresented in computing. We believe that instructional materials that advance equity cannot be designed for content and engagement alone – they must be vehicles through which solutions to practical barriers to equity can be mitigated. This project will provide materials, increase teacher and student capacity in computing, and provide a blueprint for future equity-focused materials development to further fill in the computing education gap between elementary and high school.

YX Lab Faculty: David Weintrop

Associated Faculty: Diana Franklin (University of Chicago)

Associated Students: Merijke Coenraad (UMD)

Sponsor(s): National Science Foundation

Awards & Recognition: None yet

Notable Publications:

**Sphero.Math**

Project website: N/A

Project Date: Fall 2018 - present

Brief Description: With the growing presence of technology in our world, it is critical that all children have strong preparation in computing and computational thinking. However, many learners, especially those in under-resourced schools, have relatively little opportunity to engage in meaningful computational learning experiences early in their academic careers. And when they do have opportunity it tends to be situated as an add-on topic, held in after school programs, separate from core content classes. As computing, and the technologies it enables, plays an increasingly important role both within and beyond the classroom, it is critical that we develop effective and accessible ways to provide computing opportunities for all learners ideally, integrated with the learning of core subjects, to develop essential foundational computational thinking skills.

In this project, Dr. Weintrop and Dr. Walkoe, in collaboration with teachers and district leaders from District of Columbia Public Schools, are designing, implementing, and evaluating a fourth-grade mathematics curriculum intended to teach learners computational thinking practices and mathematical concepts through the use of a spherical programmable robot. The focus of this work is to investigate the mutually supportive nature of computational thinking and mathematics and understand how such integrated curricula are enacted in urban classrooms. In doing so, we seek to empirical test one approach for addressing issues of access, equity, and opportunity that surround the goal of bringing computational thinking to all.

YX Lab Faculty: David Weintrop

Associated Faculty: Janet Walkoe (UMD - College of Education)

Associated Students: Janet Fofang & Margaret Walton (UMD - College of Education)

Sponsor(s): College of Education SPARC Grant; Spencer Foundation Small Grant

Awards & Recognition: None yet.

Notable Publications: None yet.

**PAST RESEARCH PROJECTS**

**HackHealth (http://hackhealth.umd.edu/)**

Project Date: 2013-2015

Brief Description: Researchers from the University of Maryland worked with school librarians in selected middle schools to lead a 12-week after-school program that engaged disadvantaged youth in (a) conducting scientific inquiry into health maintenance and/or disease prevention and management; (b) acting as health information intermediaries; and (c) taking action based on what they learned. The after-school program included activities designed to teach youth how to look for and evaluate health-related information online, share the information with their families, and make decisions that will improve their (and their family members’) health. These activities are structured into pods and librarians can customize these pods to meet the needs of their students.

YX Lab Faculty: Mega Subramaniam

Associated Faculty: Beth St. Jean (UMD)

Associated Students: Rebecca Follman, Natalie Greene Taylor, Christie Kodama, Faith Ambrosini (not sure we should add the associated students? What do people think?)

Sponsor(s): U.S. National Library of Medicine, National Institutes of Health, UMD College of Information Studies, iPAC

Awards & Recognition:

Notable Publications:

* Kodama, C., St. Jean, B., Subramaniam, M., & Taylor, N. G. (2017). There’s a creepy guy on the other end at Google!: Engaging middle school students in a drawing activity to elicit their mental models of Google. *Information Retrieval Journal*. *20*(5), 403-432. Available: <https://link.springer.com/article/10.1007/s10791-> 017-9306-x
* Subramaniam, M., St. Jean, B., Taylor, N. G., Kodama, C., Follman, R., & Casciotti, D. (2015). Bit by bit: Using design-based research to improve young peoples’ health literacy. *Journal of Medical Internet Research Protocols, 4*(2), paper e62. Available: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4464334/>

**EDUCATIONAL PROGRAMS**

**Youth eXperience**