Curriculum Vitae

Christopher Proctor
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Education

Ph.D.	Stanford University, Learning Sciences and Technology Design	2020
M.S.	Stanford University, Computer Science	2019
M.A.	Stanford University, Teaching English	2007
B.S.	Stanford University, Symbolic Systems	2006
B.A.	Stanford University, English	2006

Employment History

09/2020 – Present	Assistant professor of Learning Sciences Founding program director, Computer Science teacher preparation Faculty affiliate, Computer Science & Engineering Faculty affiliate, Engineering Education Department of Learning and Instruction University at Buffalo, SUNY
09/2015 – 06/2020	PhD Candidate, Stanford University Graduate School of Education. Stanford, CA.
08/2013 – 06/2015	6th & 7th Grade Computer Science teacher, The Girls' Middle School. Palo Alto, CA.
01/2012 – 04/2013	Lead software developer, Interactive Learning Group team lead, cK-12 Foundation. Palo Alto, CA.
08/2009 – 06/2011	10th Grade English teacher, Westlake High School. Austin, TX.
08/2007 – 06/2009	9th & 10th Grade English teacher, Palo Alto High School. Palo Alto, CA.

Awards

Departmental recognition, 2022 UB LAI Graduate Student Association
Chair's Award, 2019 ACM International Computing Education Research Conference.

PUBLICATIONS

Book Chapters

Burke, Q., O'Donnell, K., Angevine, C., & Proctor, C. (In press). Credentialing computation: Empowering teachers in computational thinking through educator microcredentials. In C. Mouza, A. Yadav, & A. Leftwich (Eds.), *Preparing teachers to teach computer science: Models, practices, and policies*.

Proctor, C. & Garcia, A. (2020). Student voices in the digital hubbub. In L. Hogg, K. Stockbridge, C. Achieng-Evensen, & K. Stockbridge (Eds.), *Pedagogies of With-ness: Students, teachers, voice and agency*. Myers Education Press.

Refereed Journal Articles

Proctor, C. (In press). *Computational thinking*. In International Encyclopedia of Education (7th Edition). Elsevier.

Kafai, Y. & Proctor, C. (2021). A Revaluation of Computational Thinking in K-12 Education: Moving Towards Computational Literacies. *Educational Researcher.*

Kafai, Y., Proctor, C., & Lui, D. (2020) From theory bias to theory dialogue: Embracing cognitive, situated and critical framings of computational thinking for K-12 CS education. *ACM Inroads*, 11(1), 44–53. (Invited republication.)

Proctor, C., & Blikstein, P. (2019). Unfold studio: Supporting critical literacies of text and code. *Information and Learning Sciences*, *120*(5/6), 285–307.

Competitive Technical Conference Publications[1]

Proctor, C. & Muller, D. (2022). Joint visual attention and collaboration in Minecraft. In *Proceedings of the 15th International Conference on Computer Supported Collaborative Learning*. ISLS.

Proctor, C., Zheng, Y., & Blikstein, P. (2020). Comparing cognitive and situated assessments of learning in middle school computer science. In M. Gresalfi & I.S. Horn (Eds.). *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) 2020*. (pp.238-245). International Society of the Learning Sciences. (38% accepted.)

Kafai, Y., Proctor, C., & Lui, D. (2019). From theory bias to theory dialogue: Embracing cognitive, situated and critical framings of computational thinking for K-12 CS education. In R. McCartney et al. (Eds.) *Proceedings of the 2019 ACM Conference on International Computing Education Research*. (pp. 101-109) ACM. (20% accepted.)

Proctor, C. (2019). Measuring the computational in computational participation: Debugging interactive stories in middle school computer science. In K. Lund et al. (Eds.). *A Wide Lens: Combining Embodied, Enactive, Extended, and Embedded Learning in Collaborative Settings, 13th International Conference on Computer Supported Collaborative Learning (CSCL) 2019*. (pp. 104-111). ISLS. (31% accepted.)

Proctor, C., Bigman, M., & Blikstein, P. (2019). Defining and designing computer science education in a k-12 public school district. In E. Hawthorne & M. Pérez-Quiñones (Eds.)Proceedings of the 50thACM Technical Symposium on Computer Science Education (SIGCSE '19). (pp. 314-320). ACM. (32% accepted.)

Proctor, C., & Blikstein, P. (2018). How broad is computational thinking? A longitudinal study of practices shaping computer science learning. In J. Kay & R. Luckin (Eds.). *Rethinking Learning in the Digital Age: Making the Learning Sciences Count, 13th International Conference of the Learning Sciences (ICLS) 2018*. (pp. 544-551). ISLS. (32% accepted)

Davis, R., Proctor, C., Friend, M., & Blikstein, P. (2018). Solder and wire or needle and thread: do the tools we use change the way we think? In J. Kay & R. Luckin (Eds.). *Rethinking Learning in the Digital Age: Making the Learning Sciences Count, 13th International Conference of the Learning Sciences (ICLS) 2018*. (pp. 800-807). ISLS. (32% accepted)

Other Publications

Proctor, C., & Garcia, A. (2021). *Building ELA Classroom Culture through Gaming Quick Reference Guide*. NCTE.

Proctor, C. (2021). *Unfold Studio*. (Version 0.6.0). https://github.com/cproctor/unfold_studio

Proctor, C., Han, J., Wolf, J., Ng, K., Blikstein, P. (2020). Recovering Constructionism in computer science: Design of a ninth-grade introductory computer science course. In B. Tangney, J. Rowan Byrne, & C. Girvan (Eds.) *Proceedings of the 2020 Constructionism Conference* (pp. 473-481). Dublin, Ireland: University of Dublin.

Kafai, Y., Proctor, C., Lui, D. (2019). Framing Computational Thinking for Computational Literacies in K-12 Education. In *Proceedings of the 2nd Weizenbaum Conference*. Berlin, Germany.

Proctor, C. (2020). *Qualitative Coding*. (Version 0.1.10). https://github.com/cproctor/qualitative-coding

Proctor, C. (2018). *Micro-credential stack: Computational thinking practices*. Digital Promise. https://microcredentials.digitalpromise.org/explore?page_size=24&page=1&tag=Computational%20Thinking:%20Practices

Proctor, C. (2018). *Micro-credential stack: Computational thinking pedagogies*. Digital Promise. https://microcredentials.digitalpromise.org/explore?page_size=24&page=1&tag=Computational%20Thinking:%20Pedagogies

1 In Computer Science fields (including K12 Computing Education and to some extent Learning Sciences), full papers at top conferences are comparable to journal articles in terms of impact, prestige, and acceptance rates.

Proctor, C.& Blikstein, P. (2016). Grounding how we teach programming in why we teach programming. In A. Sipitakiat & N. Tutiyaphuengprasert (Eds.) *Constructionism in Action: Proceedings of Constructionism 2016* (pp. 127-134). Bangkok, Thailand.

GRANTS

Principal Investigator. (2022). *Innovations in Teaching & Learning: Buffalo Public Schools-UB Graduate School of Education*. $250,000. Funded.

Sole Principal Investigator. (2022). *Making with Code: Scaling up a Constructionist high school CS course*. Google CS-ER. $90, 568. In submission.

Sole Principal Investigator. (2022). Designing a residency-based CS teacher preparation program with a high school community. NSF CS4All. #2219433. $277,284. In submission.

Senior Personnel. (2022). *Theme 5: Institute for Trustworthy, Responsible, User Involved, Safe AI Technology (ITRUST)*. NSF National Artificial Intelligence Research Institutes. $20,000,000. In submission.

Sole Principal Investigator. (2022). *Unfold Studio: Supporting computational literacies through interactive storytelling.* NSF AISL. #2215531. $1,068,224. Not funded.

Sole Principal Investigator. (2021). *New rules, new strategies: How school districts responded to New York Regents exam exemptions and the effect on students*. American Institutes for Research COVID-19 and Equity in Education (CEE) Mini-Research Grant for Emerging Scholars. $24,951. Not funded.

Sole Principal Investigator. (2021). *Weaving computer science into the fabric of cultural worlds through interactive storytelling*. NSF AISL #2115969. $1,049,412. Not funded.

Senior Personnel. (2021). *Augmented Intelligence for Learning and Teaching Assistant via Relational Graph Temporal Attention Network*.

Senior Personnel. (2021). *NSF INCLUDES Alliance: Redesigning for Inclusion, Success, and Equity among Underrepresented Populations (RISE-UP) in STEM*. NSF INCLUDES. $10,000,000. Not funded..

Principal Investigator. (2021). *Computational literacies: Supporting cognitive, situated, and critical learning in K12 Computer Science*. Google Research Scholar. $60,000. Not funded.

Principal Investigator. (2021). *Augmented intelligence for learning and teaching assistant via relational graph temporal attention network*. NSF RETTL #2119462. $848,836. In submission.

Principal Investigator. (2020). *Personalized learning for STEM undergraduates through interactive and adaptive AI systems*. NSF IUSE:ESL:Level II. #8105760. $599,443. In submission.

Sole Principal Investigator. (2021). *Computational literacies: Supporting cognitive, situated, and critical learning in K-12 Computer Science*. Google CS-ER. $80,000. Not funded.

Principal Investigator. (2021). *Exploring place-based learning in K-12 CS education.* Google CS-ER. $119,000. Not funded.

Principal Investigator. (2020). *Scaling ProgSnap2 for Wider Adoption*. SPLICE, NSF-funded initiative to develop infrastructure for computing education research. $10,000. Funded.

Principal Investigator. (2017). *Scaling up Unfold Studio: Computational Literacy Beyond Silicon Valley*. Stanford University TELOS: Technology for Equity in Learning Opportunities. $8000. Funded.

Principal Investigator. (2017). *The Linguistic Production of Learning Opportunities*. Amir Lopatin Fellowship, Stanford University. $3750. Funded.

Principal Investigator. (2016). *The contextual future of situated schools.* MediaX. $17,000. Funded.

Principal Investigator. (2016). *Interactive fiction: Weaving together literacies of text and code*. Stanford University TELOS: Technology for Equity in Learning Opportunities. $7500. Funded.

PRESENTATIONS

Wang, X. C. & Proctor, C. (2022). *Computational Thinking (CT) Meets Young Children: Critical Review of Research on CT in Early Childhood*.

Proctor, C. & Rogers, C. (2022). *CS Across the Curriculum: Not one more thing.* Invited talk at CSTA CS Across the Curriculum Summit.

Proctor, C. (2021). *Computational literacy and multilingual learners.* Invited talk at AERA Educational Research Conference on Computer Science for Multilingual Students.

Proctor, C. (2021). Identity as interface. In M. Shaw & Kafai, Y.B (Organizers) *Humanizing Computer Science Education*. Structured poster session presented at American Educational Research Association Annual Meeting.

Proctor, C. (2021). Laughing at social media. In Flores, N. & Rosa, J. (Discussants) *The Linguistic hierarchies embedded in digital tools: Exploring the intersections of language, technology & power*. Colloquium held at the meeting of the American Association of Applied Linguistics (Videoconference).

Proctor, C. & Rogers, C. (2020) *Literacy-based CS: Supporting identity, voice, and a sense of place through interactive story-telling*. Presentation at Computer Science Teachers Association Northeast (CSTA-NE) annual conference, Arlington, VA.

Proctor, C. & Rogers, C. (2020) *Interactive storytelling: Weaving together literacies of text and code*. Workshop at Computer Science Teachers Association (CSTA) annual conference, Arlington, VA.

Burke, Q., Angevine, C., & Proctor, C. (2020). Credentialing computation: Teacher micro-credentials in computational thinking. Paper to be presented at American Educational Research Association Annual Meeting (Conference cancelled).

Proctor, C. & Garcia, A. (2020). "True love or the guy that was there": Supporting identity and voice in computational literacies. In Shaw, M. & Kafai, Y. (Organizers). *Dis/Connecting with computing: Designing for critical identities and equitable inquiry in K-12 CS education*. Symposium to be held at American Educational Research Association Annual Meeting (Conference cancelled).

Proctor, C. (2020). *Reconsidering artificial intelligence*. Invited talk at Independent Schools Foundation Academy, Hong Kong.

Proctor, C. (2019). Considering theory in the design of CS education infrastructure: Three framings of computational thinking. In Brusilovsky, P, T.W. Price, L. Malmi and S. Edwards. *Proceedings of SPLICE 2019 workshop Computing Science Education Infrastructure: From Tools to Data* at 15th ACM International Computing Education Research Conference, Aug 11, 2019, Toronto, Canada. (Invited submission).

Proctor, C. & Rogers, C. (2019) *Stories Told and Lessons Learned: Literacy-based Computer Science at an Iowa Middle School*. Presentation at Iowa Technology and Education Conference (ITEC), Des Moines, Iowa.

Proctor, C. & Rogers, C. (2019) *Interactive Storytelling with Unfold Studio*. Workshop at Iowa Technology and Education Conference (ITEC), Des Moines, Iowa.

Proctor, C. (2019) *Connecting Computational Thinking to Broader Literacies.* Presentation at TELOS festival, Stanford University.

Proctor, C. (2018) *Interactive Storytelling: Weaving Together Literacies of Text and Code*. Philly Celebration of Writing & Literacy, Philadelphia, PA. Philadelphia Writing Project.

Proctor, C. (2018) *Computational thinking*. Invited speaker at Stanford Teacher Education Program Computer Science Curriculum & Instruction pilot course.

Proctor, C. (2018) *Interactive Storytelling*. Workshop at Computer Science Teachers Association (CSTA) annual conference, Omaha, NE.

Boles, K., Macedo, L., Proctor, C., & Blikstein, P. (2018). Manipul8: An Interactive Experience to Inspire Pattern-Based Algebraic Thinking and Representational Fluency. Demo presented at Interaction Design & Children (IDC), Trondheim, Norway.

Mongkhonvanit, K., Zau, C., Proctor, C., & Blikstein, P. (2018). Testudinata: A Tangible Interface for Exploring Functional Programming. Demo presented at Interaction Design & Children (IDC), Trondheim, Norway.

Proctor, C., & Blikstein, P. (2017). Interactive Fiction: Weaving together literacies of text and code. Work-in-progress paper presented at Interaction Design and Children (IDC), Stanford, CA.

Proctor, C. & Garcia, A. (2017) *Worldbuilding for Safe, Secure, and Private Futures: Producing Internet-Related Roleplaying Games and Interactive Fiction.* Workshop at MozFest 2017, London, UK.

Proctor, C. (2017) *Computational Thinking in English/Language Arts*. Invited speaker at Stanford Center for Supporting Excellence in Teaching & TELOS Professional development course for Ed Tech integration specialists.

Proctor, C. (2016) *Weaving english/language arts into computational literacy*. Abstract presented at Learning Sciences Graduate Student Conference (LSGSC), Chicago, IL.

Proctor, C. (2016) *Student Journalism and Mobile Media*. Invited speaker at Norcal Media Day, Palo Alto, CA. Journalism Education Association of Northern California.

SERVICE

National Service

Proceedings chair, FabLearn conference. (2020).
Program committee member, ACM SIGCSE conference. (2020).
Reviewer, *Journal of the Learning Sciences* (2021), Early Childhood Research Quarterly (2022); *ACM Transactions on Computing Education* (2022); *Computers in Education* (2020); *Information and Learning Science* (2020); *Computer Science Education* (2020); International Society of the Learning Sciences Annual Meeting (2021, 2022); International Conference of the Learning Sciences (2018, 2020); ACM SIGCSE conference (2019-2020).
Invited participant, *Integrated Computational Thinking* expert panel (NSF grant #1933933).
Invited participant, *Piecing Together the Next 15 Years of Computing Education Research* (2020-2021; NSF-funded workshop #2039833, 2039848).
Invited participant, *Integrated computational thinking delphi study*. (2021; NSF grant #1933933).

University Service

Graduate School of Education Service

Member, Computer Science teacher preparation program development working group (2020-present).
Member, Learning Sciences faculty search committee (2021).

Department Service

Program director, Computer Science Education (2021-present).
Member, LAI Scholarship, Fellowship, and GA committee (2021-present).
Member, LAI Admissions Committee (2021-present).
Member, Ad-hoc Learning Sciences Committee (2020-present).

PROFESSIONAL MEMBERSHIPS

American Educational Research Association
Association for Computing Machinery
International Society of the Learning Sciences
Computer Science Teachers Association
American Association of Applied Linguistics
National Board for Professional Teacher Certification