Charlotte Hill

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EDUCATION

University of California, Santa Barbara —Computer Science MS, 2015
- GPA: 3.91
University of California, Santa Barbara — Computer Science BS, 2013
- GPA: 3.46
- University of Edinburgh — Fall 2011

PROJECTS

LaPlaya   May 2014 to March 2015

- A visual block-based programming environment for children written in Javascript used in the second year of the pilot implementation of the KELP-CS curriculum.

Octopi Student, www.charlottehill.com/octopistudent.zip   May 2013 to May 2014

- A visual block-based programming environment for children written in Squeak Smalltalk used for the first year of the pilot implementation of the KELP-CS curriculum.

Octopi Developer, www.charlottehill.com/octopideveloper.zip   May 2013 to May 2014

- A visual block-based programming environment written in Squeak Smalltalk. Teachers and developers create scaffolded projects for students to use in Octopi Student.

KelpPlugin, www.github.com/charlottehill/KelpPlugin   February to June 2014

- A set of Hairball (see below) plugins for assessing KELP-CS Octopi projects.

Hairball, www.github.com/ucsb-cs-education/hairball   June 2012 to August 2013

- Hairball is a plugin-able Python framework for static analysis of Scratch projects from Animal Tlatoque, a computer science summer camp for middle school students at UCSB.

SKILLS

- **Languages:** C, C++, Python, Java, Javascript, Ruby, Squeak Smalltalk

- **Current work:** Programming environment design and development

- **Previous work:** Automatic analysis of programming assignments

EXPERIENCE

Software Engineer, Apple   May 2015 to present
- Software Engineer on the accessibility team.

Research Assistant, Computer Science Education, UCSB   March 2013 to March 2015
- Create a block-based language and development environment based on Scratch.
- Develop a computer science and computational thinking curriculum for 4th — 6th graders.

Problem Solving with Computers II TA, UCSB   January to March 2013

Undergraduate Research Assistant, Computer Science Education, UCSB   September to December 2012

- Created a database of common compile-time errors with examples and explanations geared towards students in undergraduate computer science courses.

Math Tutor & Instructor, Campus Learning Assistance Services, UCSB   January to March 2011, 2012

Environmental Studies 25 Facilitator, UCSB   March to June 2010, 2011, 2012

Undergraduate Research Assistant & Instructor, UCSB   June to September 2012

- Developed Scratch curricula materials and testing assistance software for Animal Tlatoque, a middle school computer science summer camp.

Undergraduate Research Assistant, Computer Architecture Lab, UCSB   June to September 2011

- Worked on a neural branch predictor for entry in the JILP Workshop on Computer Architecture Competitions: Championship Branch Prediction Competition.

Scratch Instructor, UCSB   March to June 2011

- Taught Scratch to elementary and middle school students.

P U B L I C A T I O N S

- Dwyer, H. A., **Hill, C.**, Hansen, A., Iveland, A., Franklin, D, & Harlow, D. (In press). Fourth grade students reading block-based programs: Predictions, visual cues, and affordances. In *ICER '15*, ACM

- Hansen, A. K., Dwyer, H. A., **Hill, C.**, Iveland, A., Martinez, T., Harlow, D., & Franklin, D. (In press). Interactive design by children: A construct map for programming. In *IDC '15,* ACM.

- Killian, A, Iveland, A., Dwyer, H. A., **Hill, C.**, Franklin, D., & Harlow, D. (In press). Programming science digital stories: computer science and engineering design in the science classroom. *Science and Children.*

- **Hill, C.,** Dwyer, H., Martinez, T., Harlow, D., & Franklin, D (2015). Floors and flexibility: Designing a programming environment for 4th - 6th grade classrooms. In *SIGCSE '15*, ACM.

- Franklin, D., **Hill, C**., Dwyer, H., Iveland, A., Killian, A., & Harlow, D. (2015). Getting started in teaching and researching computer science in the elementary classroom. In *SIGCSE '15*, ACM.

- Franklin, D., Harlow, D., Dwyer, H., Henkens, J., **Hill, C.**, Iveland, A., Killian, A. & Staff. (2014). *Kids Enjoying Learning Programing (KELP-CS) — Module 1 Digital Storytelling. A computer science curriculum for elementary school students*. Available at www.discover.cs.ucsb.edu/kelpcs/educators

- **Hill, C.** (2014). Computational Thinking Curriculum Development for Upper Elementary School Classes. In *ICER '14,* ACM.

- Dwyer, H., **Hill, C.**, Carpenter, S., Harlow, D., & Franklin, D. (2014). Identifying Elementary Students' Pre-Instructional Ability to Develop Algorithms and Step-by-Step Instructions. In *SIGCSE '14,* ACM.

- Dwyer, H., Boe, B., **Hill, C.**, Franklin, D., & Harlow, D. (2013). Computational Thinking for Physics: Programming Models of Physics Phenomenon in Elementary School. In *PERC '13,* AIP Conference Proceedings.

- Boe, B., **Hill, C.,** Len, M., Dreschler, G., Conrad, P., & Franklin, D. (2013). Hairball: Lint-inspired Static Analysis of Scratch Projects. In *SIGCSE '13,* ACM.

- Franklin, D., Conrad, P., Boe, B., Nilsen, K., **Hill, C.,** Len, M., Dreschler, G., Aldana, G., et al. (2013). Assessment of Computer Science Learning in a Scratch-Based Outreach Program. In *SIGCSE '13*, ACM.
- Saadeldeen, H., Franklin, D., Long, G., **Hill, C.**, Browne, A., Strukov, D., Sherwood, T., & Chong, F. (2013). Memristors for Neural Branch Prediction: A Case Study in Strict Latency and Write Endurance Challenges. In *ITA '13*, ACM.

LEADERSHIP & COMMITTEE INVOLVEMENT
- Co-President, Women in Computer Science, UCSB— Oct. 2013 to March 2015
- Webmaster, Celebration of Women in Computing in Southern California — May 2013-2014
- Scholarship Advisor, Delta Psi Chapter, Gamma Phi Beta — 2013 to May 2015
- Financial VP, Delta Psi Chapter, Gamma Phi Beta — 2011