

Michael Ball | Curriculum Vitae

San Francisco, CA

✉ ball@berkeley.edu • 🌐 <https://mball.co> • 🔄 cycomachhead

Education

University of California, Berkeley

M.S. Computer Science, Advisor: Dr. Daniel Garcia

Thesis: Lambda: An Autograder for Snap!

Berkeley, CA

2015-2016

University of California, Berkeley

B.A. Computer Science

Berkeley, CA

2011-2015

Positions

UC Berkeley EECS, Data Science

Continuing Lecturer

Berkeley, CA

July 2025 - Present

UC Berkeley EECS, Data Science

Lecturer

Berkeley, CA

July 2019 - June 2025

Full-time lecturer, actively involved in EECS undergraduate curricular matters, and pedagogy.

Gradescope

Software Engineer

Berkeley, CA

July 2016 – July 2021

Early software engineer from startup through an acquisition by Turnitin. Responsible for web accessibility, conference presentations. Part time starting in Fall 2019.

UC Berkeley EECS

Researcher and Engineer

Berkeley, CA

2016-2018

Part-time role. Primarily focus on both Snap! and The Beauty and Joy of Computing projects.

Teaching — UC Berkeley

Course Descriptions

CS 10 *The Beauty and Joy of Computing* is a non-majors introduction to computer science. This is a hands-on project-based course taught using Snap! and Python. (4 units)

CS 88 / DATA C88C *Computational Structures for Data Science* is a CS1 or "1.5" course for data science

majors. Based on Sussman's venerable SICP book, taught in Python. (3 units)

CS 169 *Engineering Software as a Service* The original software engineering course, later split into CS169A and CS169L. (4 units)

CS169A *Engineering Software as a Service* is an upper division course which focuses on the dynamics of modern software engineering through RESTful design, HTTP, and team projects. (4 units)

CS169L *Software Engineering Team Project* is a follow up to CS169A, where teams of students get hands-on experience building a semester-long project for a campus organization or local nonprofit. (4 units)

CS W186 *Introduction to Databases* is an upper division databases course, offered in an online format. (4 units)

CS 194-23 *Art & Science of Digital Photography* is a highly technical photography course, bridging both art and engineering. (4 units)

CS 195 / CS H195 *The Social Implications of Computing Technology* is a course for students to explore the unintended consequences of computing, including the culture of how we build programs. H195 is an honors course where students complete a small research project. (1 unit / 3 units)

CS 294-188 *Design and Evaluation of CS at Scale* is a pedagogy course for teaching assistants designed to engage in course-course collaborations and learn about current computing education pedagogy. (1 unit)

CS 302 *Designing Computer Science Education* is a course which students take to prepare them to be the instructor of record for a summer CS course. (3 units)

CS 375 *Teaching Practicum* is the course all first time teaching assistants in computer science take. (2 units)

DATA 101 / CS C187 *Data Engineering* an upper division course putting databases into practice. Topics include SQL, window functions, indexing, design, ETL, NoSQL, graph databases, etc. (4 units)

Teaching Assignments.....

Notes:

- * denotes courses which were co-taught.
- Spring 2020 included an abrupt switch to remote instruction.
- Fall 2020, Spring 2021 were entirely remote semesters.
- Fall 2021, Spring 2022, and Fall 2022 included significant hybrid teaching components.

- **Summer 2026**
Co-Director EECS Summer Program (10 courses)
- **Spring 2026**
DATA C88C (500 students, 14 Staff), CS 169L* (18 students, 2 staff), CS 302* (8 students, 1 staff)
- **Fall 2025**
DATA C88C (550 students, 13 staff), CS 169A (140 students, 3 staff), CS294-189* (16 students, 0 staff)
- **Summer 2025**
Co-Director EECS Summer Program (10 courses)
- **Spring 2025**
DATA C88C (550 students, 14 Staff), CS 169L* (18 students, 3 staff), CS 302* (25 students, 1 staff)
- **Fall 2024**
DATA 101* (450 students, 12 staff), CS 169A (280 students, 5 staff)
- **Summer 2024**
Co-Organizer EECS Summer Program (11 courses)
- **Spring 2024**
DATA C88C (500 students, 14 Staff), CS 169L* (16 students, 2 staff), CS 302* (20 students, 0 staff)
- **Fall 2023**
DATA C88C (460 students, 10 staff), CS 169A* (270 students, 6 staff)
- **Summer 2023**
Organizer EECS Summer Program (10 courses)
- **Spring 2023**
DATA C88C (500 students, 15 staff), CS 169L* (20 students, 1 TA), CS 302 (24 students, 0 staff)
- **Fall 2022**
CS 88 (450 students, 14 staff), CS 169A* (240 students, 7 staff), CS 195/H195* (300 students, 1 TA)
- **Summer 2022**
Co-Organizer EECS Summer Program (10 courses)
- **Spring 2022**
CS 88 (420 students, 12 staff), CS 10 (150 students, 6 staff), CS 302* (25 students, 1 reader)
- **Fall 2021**
CS 88 (400 students), CS 169A* (300 students), CS294-188 (10 students)

- **Spring 2021**
CS 88 (400 students), CS 195 (400 students), CS169L* (60 students)
- **Fall 2020**
CS 88 (360 students), CS 169A* (300 students)
- **Spring 2020**
CS 88* (300 students), CS W186* (700 students), CS 195* (400 students)
- **Fall 2019**
CS 88 (240 students, 8 staff), CS 169 (120 students, 4 staff), CS 375 (80 students)
- **Summer 2015**
CS 10* (60 students, 5 staff)
- **Spring 2015**
Head-TA, CS 10 (330 students)
- **Fall 2014**
Head-TA, CS 10 (330 students)
- **Spring 2014**
Head-TA, CS 10 (300 students)
- **Fall 2013**
TA, CS 10 (300 students)
- **Spring 2013**
TA, CS 194-23: The Art & Science of Digital Photography (30 students); TA, CS 10 (300 students)
- **Fall 2012**
TA, CS 10 (240 students)

Awards

- UC Berkeley Lecturer Teaching Fellows, 2019-2020
Year-long project on Parsons Puzzles in intro CS courses.
- Best Lightning Talk Award, 49th ACM Technical Symposium on Computer Science Education, 2018
Awarded for the lightning talk "IRT In 5 minutes".
- Eugene L. Lawler Prize, UC Berkeley EECS, 2015
The Lawler Prize honors computer science undergraduates from disadvantaged groups (such as the disabled community and ethnic minorities) or a person who has surmounted unusual difficulties in pursuing

a degree with demonstrated academic effort. This prize was established by the UC Berkeley Computer Science Division to honor the memory of colleague, Professor Eugene L. Lawler, who was an internationally recognized expert in mathematical theories of scheduling and resource allocation. <https://www2.eecs.berkeley.edu/Students/Awards/#11>

- EECS Distinguished Graduate Student Instructor Award, 2015

Faculty nominate the top nine percent of UC Berkeley EE or CS GSIs and Group Tutors from the semesters of the previous calendar year. From these, the EECS Student Awards committee selects one top EE and one CS GSI for the departmental award. Because EECS is a large department with about 180 GSIs per semester, it is a great honor to be selected as an Outstanding GSI. <https://www2.eecs.berkeley.edu/Students/Awards/#13>

Grants and Gifts

- UC Berkeley Instructional Technology "Micro-grant" (2024-2025) Lisa Yan, **Michael Ball**. \$50,000
Following a successful first year, we were awarded subsequent funding and plan to continue the work with a focus on accessibility and sustainable maintenance of tools.
- UC Berkeley Instructional Technology "Micro-grant" (2023-2024) Lisa Yan, **Michael Ball**. \$50,000
During a year-long pilot program through the Vice Provost's Office, we coordinated a team of students modernizing educational tools for CS and DS courses. Collaborated close with campus partners in Research, Teaching, and Learning to share custom tools with larger campus groups.
- UC Berkeley Presidential Chair Fellows (2021-2022) Pamela Fox, **Michael Ball**. \$22,500
UC Berkeley awarded a years-long grant through the Center for Teaching and Learning to add Parsons Problems to CS61A and CS88. Parsons Problems are interactive puzzles that lower the burden of memorizing syntax.
- Hopper-Dean Foundation BJC 2020-2023 (Dan Garcia PI) \$600,000
The Hopper-Dean Foundation sponsored the development of the Beauty and Joy of Computing curriculum. I helped create a new middle school, functional-first curriculum "BJC Sparks". I contributed engineering for a Spanish translation of our high school CS Principles course, and the Snap! programming language.
- NSF EAGER, Student Mission Control for the International Space Station (2021-2024), \$298,944, Research Engineer (Dan Garcia co-PI) Funding to support development of an API, website, "Student Mission Control" interface, and curriculum modules centered on the data streaming out of the International Space Station. NSF Award #2027260
- UC Berkeley College of Engineering, Course Adaptation and Remote Delivery, Learning, and Assessment: Developing Question Generators and MOOC-like videos & quizzes for remote CS61C, CS10, and CS169A (2020), \$60,000, Dan Garcia co-PI Funding to build Question Generators and MOOC-like videos and quizzes for CS61C and CS10 for remote delivery, learning, and assessment.

- Hopper-Dean Foundation, Accelerating CS Diversity Programs Fund (2019), \$600,000, Dan Garcia PI
The foundation granted \$3M to the department to fund diversity initiatives; Summer salary was used to support our middle school curriculum, Spanish translation, software development and staff.
- Hopper-Dean Foundation (\$200,000). 2016. Researcher. (Daniel Garcia, PI.)
For the support of diversity initiatives in CS to support high schools nationwide. The High School Initiative focuses on high school computer science teachers, led by Professor Dan Garcia. In response to NSF Program Manager Jan Cuny's charge to change the face of computing by engaging and preparing 10,000 teachers to teach computer science courses, Professor Garcia and colleagues have developed our non-major computer science class CS10: The Beauty and Joy of Computing (BJC) into a course that is fully aligned with high school Academic Placement (AP) specification. The plan is to accomplish this objective via an edX Small Private Online Course (SPOC) experience, with the high school teacher in control. The course recently received national exposure when it had more women than men in an intro CS course for the first time since records were digitized.
- Google CS Engagement Award (\$5,000). 2015. Michael Ball.
This gift from Google was used to support CS10 and The Beauty and Joy of Computing. The funds have been used to develop Snap! enhancements and help fund the Snap! Cloud infrastructure.
- Google's 3X in 3 Years (2015), \$900,000, Student Researcher Authored By Dan Garcia. Funding to the department for 3-year project to grow undergraduate capacity and support diversity via our "Scaling Computer Science through Targeted Engagement" project. The three objectives are (1) Decrease the intro GPA gap between experienced and inexperienced students by 50%, (2) Increase Software Engineering and UI Design enrollment by 500 total students/year, and (3) Increase the number of women and underrepresented minority CS majors by a factor of 3.
- NSF STEM-C BJC4NYC: Bringing the Beauty and Joy of Computing to the Largest School System in the US (\$7,874,876). 2014. Consultant.
For the development of curricular materials, based on the Beauty and Joy of Computing, for teaching CS Principles at the high school level using the Snap! programming language. Development of the Snap! language, including the cloud back-end, and BJC curriculum software. I During the project, 100 high school teachers in New York City were trained to teach BJC, and early participants become teacher-trainers who worked with later participants. The teachers involved become part of a Community of Practice that continues to provide support for the teacher cohorts. I worked with EDC curriculum developers to review and suggest changes, developed BJCx (with auto-grading features) for teachers as a small private online course (SPOC), and (3) supported BJC teachers online.
- edX (\$50,000). 2014. Staff.
For the development of BJCx, a Computer Science Principles edX MOOC to be offered (1) as a synchronous Small Private Online Course (SPOC) for high schools, (2) a synchronous open-to-all MOOC for others, and (3) an asynchronous self-study course. The development concluded in creating four sub-MOOCs, which together was the sum of the BJC offering. I supported Snap! cloud integration, developed autograding (remote grading of Python and Snap! assignments and lab activities in a remote server) and an automated lab content builder, and supported BJC students and teachers in an online forum.

Research Interests

- **Computer Science Education**

I am most experienced in high school, CS0 and CS1 courses. I am particularly interested in exploring and improving structural issues in courses, such as sound principles for course policies, teaching with teams and effective use of education technology.

- **Digital Accessibility**

I have experience building tools for software teams to improve the accessibility of web applications. I'm interested in improving methods for automatically detecting accessibility defects and recommending corrections. I am also interested in building accessible CS courses, and materials to teach accessibility to students.

Students Supervised

- May 2026: Rebecca Dang ""

Co-advised with Lisa Yan

- May 2025: Edwin Vargas-Navarro ""

Co-advised with Lisa Yan

- May 2021: Alex Kassil "Active Academic Integrity"

Co-advised with John DeNero

<https://www2.eecs.berkeley.edu/Pubs/TechRpts/2021/EECS-2021-157.html>

- May 2020: Mansi Shah "Exploring the Use of Parsons Problems for Learning a New Programming Language"

2nd Reader; advised by Dan Garcia

<https://www2.eecs.berkeley.edu/Pubs/TechRpts/2020/EECS-2020-88.html>

- May 2020: Harikaran Subbaraj "Using Dataflow for Machine Learning Inference"

2nd reader; advised by Joey Gonzalez

<http://www2.eecs.berkeley.edu/Pubs/TechRpts/2020/EECS-2020-75.html>

Service

Professional Service.....

2024: SIGCSE Online: 2024 Posters and Lightning Talks Program Chair

2024: Snap!shot 2024 Co-Organizer; Technical Lead

2023: Snap/Con 2023 Co-Organizer; Technical Lead
2022: Snap/Con 2022 Co-Organizer; Technical Lead
2021: Snap/shot 2021 Mini-Conference Co-Organizer; Technical Lead, December 2021
2021: Snap/Con 2021 Co-Organizer; Technical Lead
2021: SIGCSE Technical Symposium Publicity Co-Chair
2021: SIGCSE Technical Symposium Associate Program Chair / Senior Reviewer "Experience Reports and Tools"
2020: Snap/shot 2020 Mini-Conference Co-Organizer; Technical Lead
2020: Snap/Con 2020 Co-Organizer; Technical Lead
2020: SIGCSE Technical Symposium Publicity Co-Chair
2018-2020: SIGCSE Technical Symposium Computer Science Principles Providers and Teachers Forum Co-Organizer
 This forum was launched because there had been no formal face-to-face community for providers and teachers of CSP to discuss best practices, feedback, or share teaching experiences at SIGCSE.
2016 - 2020: SIGCSE Technical Symposium Reviewer
2018: SIGCSE Technical Symposium Photography Chair

Departmental & Institutional Service.....

2025 - 2026: UC Berkeley EECS Summer 2026 Instruction Co-Director
 Summer '26
2026: UC Berkeley Unit 18 Faculty Excellence Review Committee (Lecturer in Computer Science)
 Spring '26
2024 - 2025: UC Berkeley EECS Summer 2025 Instruction Co-Director
 Summer '25
2025: UC Berkeley Unit 18 Faculty Excellence Review Committee (Lecturer in Economics)
 Spring '25
2024 - 2025: UC Berkeley EECS Computer Networks and Instructional Labs Committee
2023 - 2024: UC Berkeley EECS Summer 2024 Instruction Co-Director
 Summer '24: Hired 10 Unit 18 Lecturers, involved in Union- and Campus-level negotiations
2023 - 2026: UC Berkeley Teach-Net Faculty Community Moderator
 Campus-wide community of 1,000 faculty, staff, and administrators
2022 - 2023: UC Berkeley EECS Summer 2023 Instruction Coordinator
2019 - 2025: UC Berkeley EECS Undergraduate Study Committee
2021 - 2022: UC Berkeley EECS Summer 2022 Instruction Co-Coordinator
2021 - 2022: UC Berkeley: Research Teaching & Learning Faculty Advisory Committee, Co-Chair
2020 - 2023: EECS Department Student Grievances Committee, CS Chair
2020 - 2021: UC Berkeley: Disabled Students Program Faculty Advisory Committee, Member
2020 - 2021: UC Berkeley: Research Teaching & Learning Faculty Advisory Committee, Member

Winter 2020 - 2021: UC Berkeley Working Group: Online Proctoring Policies, Member
Spring 2020: UC Berkeley Working Group: Best Practices for Remote Exams, Member
2016: UC Berkeley EECS Graduate Student Instructor Survey Presentation for Faculty
2014 - 2015: UC Berkeley EECS Undergraduate Study Committee, Student Member

Writing & Publications

Invited Talks, Workshops & Lectures.....

- Faberlull: Educational Programming Languages and Robotics IX, Invited Resident
May 6-13, 2026, Olot, Spain
<https://faberlull.cat/en/residencia.cfm?id=43646>
- Faberlull: Educational Programming Languages and Robotics VIII, Invited Resident
May 7-14, 2025, Olot, Spain
<https://faberlull.cat/en/residencia.cfm?id=43646>
- Faberlull: Educational Programming Languages and Robotics VII, Invited Resident
May 7-14, 2024, Olot, Spain
<https://faberlull.cat/en/residencia.cfm?id=43646>
- Faberlull: Educational Programming Languages and Robotics VI, Invited Resident
May 4-11, 2023, Olot, Spain
<https://faberlull.cat/en/residencia.cfm?id=42597>
- ChatGPT What does it mean for Education? UC Berkeley Center for Teaching and Learning
Invited Panelist, Feb 16, 2023
- UC Berkeley Vice Provost for Undergraduate Educations Remote Proctoring Session
Online Workshop, Co-host. August 2022
- Invited participant Dagstuhl Seminar 22302 “Educational Programming Languages and Systems”,
July 2022, Wadern, Germany.
<https://doi.org/10.4230/DagRep.12.7.205>
- UC Berkeley Vice Provost for Undergraduate Educations Remote Proctoring Session
Online Workshop, Co-host. January 2022
- **Ball, Michael** and Garcia, Daniel. Online Learning (Talk). University of Washington CS Education
Seminar, Online, 2020-05-28.

- **Ball, Michael** and Garcia, Daniel. Mastery Learning at Scale (Talk). University of Washington CS Education Seminar, Online, 2020-06-04.

Conference Papers

1. Garcia, Daniel; Fries, Mary; **Ball, Michael**; Fox, Pamela; Gelosi, Deanna; Mock, Lauren; Dastur, Della; Briccetti, Dave; Kahn, Bob
BJC Sparks: A New Functional-First Middle School CS Curriculum
In SIGCSE 2023: Proceedings of the 54th ACM Technical Symposium on Computer Science Education V. 1 March 2023.
<https://doi.org/10.1145/3545945.3569842>

Conference and Workshop Presentations

58. **Ball, Michael**; Mönig, Jens; Garcia, Daniel; Phelps, Victoria; Garcia, Yuan; Huegle, Jadga
A Community of Snap! Educators — New Features and Tools for Teaching AI (Demo).
In SIGCSE 2026: Proceedings of the 57th ACM Technical Symposium on Computer Science Education V. 2 February 2026
<https://doi.org/10.1145/3770761.3777109>
57. Blank, Adam; **Ball, Michael**; McGaha, Travis; Rampure, Suraj; Velasco, Yesenia; Walther, Kendra
Teaching Faculty Careers without a PhD: A Mentoring Community (BoF).
In SIGCSE 2026: Proceedings of the 57th ACM Technical Symposium on Computer Science Education V. 2 February 2026
<https://doi.org/10.1145/3770761.3777084>
56. **Ball, Michael**; Garcia, Daniel; Fries, Mary; Hill, Marnie; Dastur, Della; Mock, Lauren
The Beauty and Joy Computing: CS Curricula That Scales from Middle School to University (Tutorial).
In SIGCSE 2026: Proceedings of the 57th ACM Technical Symposium on Computer Science Education V. 2 February 2026
<https://doi.org/10.1145/3770761.3777056>
55. Garcia, Daniel; Mönig, Jens; Hügler, Jadga; Fries, Mary; Kang, Jane M.; Dastur, Delnavaz; Phelps, Victoria; Bettencourt, Bryant; **Ball, Michael**; Mock, Lauren
A Hands-on and Interactive Introduction to the Fundamentals of Artificial Intelligence using Snap! (Tutorial).
In SIGCSE 2026: Proceedings of the 57th ACM Technical Symposium on Computer Science Education V. 2 February 2026
<https://doi.org/10.1145/3770761.3777048>
54. **Ball, Michael**; Rampure, Suraj; Lin, Kevin
A New Class of Teaching-Track Faculty: No Ph.D. Required (BoF).
In SIGCSE 2025: Proceedings of the 56th ACM Technical Symposium on Computer Science Education

V. 2 February 2025

<https://doi.org/10.1145/3641555.3705113>

53. Phelps, Victoria; **Ball, Michael**; Garcia, Daniel; Garcia, Yuan
Snap! 10 — From Blocks to AI: Empowering Learning with Custom Primitives and Machine Learning (Demo).
In SIGCSE 2025: Proceedings of the 56th ACM Technical Symposium on Computer Science Education
V. 2 February 2025
<https://doi.org/10.1145/3641555.3705048>

52. Garcia, Daniel; Fries, Mary; **Ball, Michael**; Mock, Lauren
Igniting Curiosity with BJC Sparks: A Transformative Curriculum for Middle and High School Computer Science (Workshop).
In SIGCSE 2024: Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 2 March 2024
<https://doi.org/10.1145/3626253.3633415>

51. Garcia, Daniel; Hug, Josh; Badrinath, Anirudhan; **Ball, Michael**; Mock, Lauren
Student Mission Control: Integrating Space Data Exploration into Data and Computer Science Education (Workshop).
In SIGCSE 2024: Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 2 March 2024
<https://doi.org/10.1145/3626253.3633417>

50. **Ball, Michael**; Garcia, Daniel; Phelps, Victoria; Garcia, Yuan
Snap! 9 — Support for Teachers and Programming with Data (Demo).
In SIGCSE 2024: Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 2 March 2024
<https://doi.org/10.1145/3626253.3635437>

49. Walther, Kendra; Blank, Adam; **Ball, Michael**; Rampure, Suraj
A new class of Teaching-Track Faculty: No Ph.D. required (Panel).
In SIGCSE 2023: Proceedings of the 54th ACM Technical Symposium on Computer Science Education V. 2 March 2023.
<https://doi.org/10.1145/3545947.3569608>

48. Zhou, Lauren; Dewan, Akshit; Kothapalli, Anirudh; Fox, Pamela; **Ball, Michael**; Joseph, Thomas
Implementing Faded Parsons Problems in a Very Large CS1 Course (Poster).
In SIGCSE 2023: Proceedings of the 54th ACM Technical Symposium on Computer Science Education V. 2 March 2023.
<https://doi.org/10.1145/3545947.3576300>

47. **Ball, Michael**; Garcia, Daniel; Garcia, Yuan

Snap! 8 — Smart Script Pics and Metaprogramming for All! (Demo).

In SIGCSE 2023: Proceedings of the 54th ACM Technical Symposium on Computer Science Education
V. 2 March 2023.

<https://doi.org/10.1145/3545947.3573231>

46. **Ball, Michael**; Garcia, Daniel; Garcia, Yuan

Ten Years of Snap!! — Where Should We Go Next? (Birds of a Feather).

In SIGCSE 2023: Proceedings of the 54th ACM Technical Symposium on Computer Science Education
V. 2 March 2023.

<https://doi.org/10.1145/3545947.3573357>

45. Walther, Kendra; Blank, Adam; **Ball, Michael**; Rampure, Suraj

A new class of Teaching-Track Faculty: No Ph.D. required (Panel).

In SIGCSE 2022: Proceedings of the 53rd ACM Technical Symposium on Computer Science Education
V. 2 March 2022.

<https://doi.org/10.1145/3478432.3499227>

44. Garcia, Daniel; **Ball, Michael**; Garcia, Yuan

Snap! 7 – Microworlds, Scenes, and extensions! (Demo).

In SIGCSE 2022: Proceedings of the 53rd ACM Technical Symposium on Computer Science Education
V. 2 March 2022.

<https://doi.org/10.1145/3478432.3499266>

43. **Ball, Michael**; Mock, Lauren; Garcia, Daniel; Barnes, Tiffany; Hill, Marnie; Fries, Mary; Fox, Pamela;
Garcia, Yuan

Beauty and Joy of Computing: AP CS Principles & Middle School Curriculum (Workshop).

In SIGCSE 2022: Proceedings of the 53rd ACM Technical Symposium on Computer Science Education
V. 2 March 2022.

<https://doi.org/10.1145/3478432.3499145>

42. Blank, Adam; Walther, Kendra; **Ball, Michael**

Teaching Track Faculty with a Masters-Only (BOF).

2021 Richard Tapia Celebration of Computing–Online

41. Mönig, Jens; Romagosa, Bernat; Harvey, Brian; **Ball, Michael**; Hügler, Jadga

What Might Be the Future of Snap!? (Panel) Snap!Con 2021. Online

<https://www.snapcon.org/conferences/2021/program/proposals/295>

40. Garcia, Daniel; Gelosi, Deanna; Fries, Mary; Fox, Pamela; **Ball, Michael**

BJC Middle School 1.0 (Panel) Snap!Con 2021. Online.

<https://www.snapcon.org/conferences/2021/program/proposals/277>

39. **Ball, Michael**; DeOrio, Andrew; Hsia, Justin; Blank, Adam

Teaching TAs to Teach: Strategies for TA Training. (Panel)

In SIGCSE '21: Proceedings of the 52nd ACM Technical Symposium on Computer Science Education

March 2021, pp 461–462

<https://doi.org/10.1145/3408877.3432579>

38. Kassil, Alex; **Ball, Michael**

Active Academic Integrity (Poster)

in SIGCSE '21: Proceedings of the 52nd ACM Technical Symposium on Computer Science Education

March 2021

<https://doi.org/10.1145/3408877.3439674>

37. **Ball, Michael**; Garcia, Daniel; Arvai, Eric

Effective Video Production for Online and In-Person Courses (Workshop).

In SIGCSE '21: Proceedings of the 52nd ACM Technical Symposium on Computer Science Education.

<https://doi.org/10.1145/3408877.3432509>

36. Lin, Kevin; Battestilli, Lina; **Ball, Michael**. Strategies for Authentic Assessments of Mastery in CS Courses (Birds of a Feather).

In SIGCSE '21: Proceedings of the 52nd ACM Technical Symposium on Computer Science Education

March 2021

<https://doi.org/10.1145/3408877.3439504>

35. Hill, Marnie; Garcia, Daniel; Barnes, Tiffany; Mock, Lauren; **Ball, Michael**; Isvik, Amy; Bell, Dave

Teaching with the Beauty and Joy of Computing – AP CSP and More! (Workshop)

in Proceedings of the 52nd ACM Technical Symposium on Computer Science Education (SIGCSE '21)

<https://doi.org/10.1145/3408877.3432507>

34. Garcia, Daniel; **Ball, Michael**

Snap!6, Introducing Hyperblocks! (Demo)

In SIGCSE '21: Proceedings of the 52nd ACM Technical Symposium on Computer Science Education

March 2021

<https://doi.org/10.1145/3408877.3439545>

33. Mönig, Jens; Harvey, Brian; **Ball, Michael**; Guillén, Joan; Hügler, Jadga; Romagosa, Bernat

The Future of Snap! (Panel)

Snap!Con 2020, Online.

<https://www.snapcon.org/conferences/2020/program/proposals/35>

32. Garcia, Dan; **Ball, Michael**.

Snap! v5, Our Biggest, Feature-filled Release Ever! (Demo)

In Proceedings of the 51st ACM Technical Symposium on Computer Science Education (SIGCSE

'20). Association for Computing Machinery, New York, NY, USA, 1417.
<https://doi.org/10.1145/3328778.3372549>

31. **Ball, Michael**, Lauren Mock, Dan Garcia, Tiffany Barnes, Marnie Hill, Alexandra Milliken, Joshua Paley, Efrain Lopez, and Jason Bohrer. 2020. The Beauty and Joy of Computing Curriculum and Teacher Professional Development (Workshop). In Proceedings of the 51st ACM Technical Symposium on Computer Science Education (SIGCSE '20)
<https://doi.org/10.1145/3328778.3367029>
30. **Ball, Michael**; Hsia, Justin; Pon-Barry, Heather; DeOrio, Andrew; Blank, Adam. Teaching TAs To Teach: Strategies for TA Training (Panel). SIGCSE '20: Proceedings of the 51st ACM Technical Symposium on Computer Science Education February 2020
<https://doi.org/10.1145/3328778.3366987>
29. **Ball, Michael**; Jatzlau, Sven; Snap!Con 2019 Lightning Talk: An Analysis of 500,000 Snap! Projects
28. **Ball, Michael**. Snap!Con 2019 Lightning Talk: Using JSFunction with the Wolfram Alpha API
27. Mönig, Jens; Romagosa, Bernat; **Ball, Michael**; Harvey, Brian; The Future of Snap! (Panel). Snap! Con 2019
26. **Ball, Michael**; Snap! A Look at 550K Projects. Poster. Snap!Con 2019, Heidelberg, Germany.
25. **Ball, Michael**; What's New in Snap! 5? Poster. Snap!Con 2019, Heidelberg, Germany.
24. **Ball, Michael**; A Look at 6 Years of the Snap!/Cloud. Snap!Con 2019, Heidelberg, Germany.
23. **Ball, Michael**; Mönig, Jens; Romagosa, Bernat; Harvey, Brian. Snap! A Look at 5 Years, 250,000 Users and 2 Million Projects. Poster. Proceedings of the 50th ACM Technical Symposium on Computer Science Education.
<https://doi.org/10.1145/3287324.3293863>
22. Mock, Lauren; **Ball, Michael**; Garcia, Daniel; Barnes, Tiffany. 2019. Computer Science Principles Providers and Teachers Forum (Pre-Symposium Workshop). In Proceedings of the 50th ACM Technical Symposium on Computer Science Education (SIGCSE '19). Association for Computing Machinery, New York, NY, USA.
21. **Ball, Michael**. Teaching Accessibility Using Software. What to Teach about Accessibility SIGCSE 2019 Pre-Symposium Event.
20. **Ball, Michael**. IRT in 5 Minutes: Easy Ways to Better Understand an Assessment. Lightning Talk. Proceedings of the 49th ACM Technical Symposium on Computer Science Education. <http://doi.acm.org/10.1145/315>

19. Galanos, Ria; **Ball, Michael**; Dougherty, John; Hummel, Joe; Malan, David. Technology We Can't Live Without!, Revisited. Panel. Proceedings of the 49th ACM Technical Symposium on Computer Science Education. <http://doi.acm.org/10.1145/3159450.3159629>
18. Milliken, Alexandra; **Ball, Michael**; Mock, Lauren. AP CS Principles and The Beauty and Joy of Computing Curriculum: Workshop. Proceedings of the 49th ACM Technical Symposium on Computer Science Education. <http://doi.acm.org/10.1145/3159450.3162375>
17. Garcia, Daniel; Harvey, Brian; Mönig, Jens; **Ball, Michael**; Romagosa, Bernat; Low, Robert; Mock, Lauren. The Beauty and Joy of Computing. Workshop. Scratch Conference 2017, Bordeaux, France, 2017-07-21.
16. **Ball, Michael**; Garcia, Daniel; Mock, Lauren. Writing Autograders for Snap! and Integrating them Into Your Course. Short Talk, Scratch Conference 2017, Bordeaux, France, 2017-07-20.
15. Garcia, Daniel; Harvey, Brian; Mönig, Jens; **Ball, Michael**; Mock, Lauren; Low, Robert; Romagosa, Bernat. The Beauty and Joy of Computing and the Snap! Programming Language. Poster. Scratch Conference 2017, Bordeaux, France, 2017-07-20.
14. **Ball, Michael**; Garcia, Daniel; Mock, Lauren. Early Analysis of "In-Lab" Autograding for Snap!. Poster. Scratch Conference 2017, Bordeaux, France, 2017-07-20.
13. Mock, Lauren; **Ball, Michael**; Garcia, Daniel; Harvey, Brian. Lessons Learned Delivering a Customizable Course with Autograders to 200 Teachers. Ignite Talk. Scratch Conference 2017, Bordeaux, France, 2017-07-20.
12. Garcia, Daniel; Romagosa, Bernat; **Ball, Michael**; Mönig, Jens; Harvey, Brian. Programming the Internet (of things) with Snap!. Short Demo. Scratch Conference 2017, Bordeaux, France, 2017-07-19.
11. **Ball, Michael**. Writing Autograders for Snap! and Integrating Them Into Your Course. Demo. Proceedings of the 48th ACM SIGCSE Technical Symposium on Computer Science Education. <http://doi.acm.org/10.1145/3017680.3022385>
10. **Ball, Michael**. Implementing "In-Lab" Autograding for Snap!. Poster. Proceedings of the 48th ACM SIGCSE Technical Symposium on Computer Science Education. <http://doi.acm.org/10.1145/3017680.3022443>
9. Garcia, Daniel and **Ball, Michael**. Bringing the Beauty and Joy of Computing to the World via edX: An Experience Report. Panel. Scratch Conference 2016, Cambridge, MA, 2016-08-05.
8. **Ball, Michael** and Garcia, Daniel. Autograding and Feedback for Snap!: A Visual Programming

Language. Poster. Proceedings of the 47th ACM Technical Symposium on Computing Science Education. <http://doi.acm.org/10.1145/2839509.2850572>

7. Garcia, Daniel; Barnes, Tiffany; **Ball, Michael**; Biga, Emil; Paley, Josh; Hill, Marnie; Mattix, Nathan; Safa, Parisa; Morris, Sean; Kenner, Shawn. AP CS Principles and The Beauty and Joy of Computing Curriculum. Workshop. Proceedings of the 47th ACM Technical Symposium on Computing Science Education. <http://doi.acm.org/10.1145/2839509.2844714>
6. **Ball, Michael**. Using Instant Chat for Fun and for Profit to Run a Large Class. Abstract Only. Proceedings of the 47th ACM Technical Symposium on Computing Science Education. <http://doi.acm.org/10.1145/2839509.2844714>
5. Garcia, Daniel; Harvey, Brian; Mönig, Jens; **Ball, Michael**. The Beauty and Joy of Computing. Workshop. Scratch 2015, Amsterdam, Netherlands, August 12-16, 2015.
4. Garcia, Daniel; Harvey, Brian; Mönig, Jens; **Ball, Michael**. Bringing the Beauty and Joy of Computing to the World via edX. Special Session. Scratch 2015, Amsterdam, Netherlands, August 12-16, 2015.
3. Garcia, Daniel; Harvey, Brian; Mönig, Jens; **Ball, Michael**. The Beauty and Joy of Computing and the Snap! Programming Language. Poster. Scratch 2015, Amsterdam, Netherlands, August 12-16, 2015.
2. **Ball, Michael**; Mock, Lauren; McKinsey, Jonathan; MacHardy, Zachary; Garcia, Daniel; Titterton, Nathaniel; Harvey, Brian. Oh, Snap! Enabling and Encouraging Success in CS1. Poster. Proceedings of the 46th ACM Technical Symposium on Computer Science Education. <http://doi.acm.org/10.1145/2676723.2691947>
1. Garcia, Daniel; **Ball, Michael**; Parikh, Aatash. L@S 2014 Demo: Best Practices for MOOC Video. Demo+Paper. Proceedings of the First ACM Conference on Learning @ Scale Conference. <http://doi.acm.org/10.1145/2676723.2691947>

Other Writing.....

- Engineering Software as a Service. 2nd. Edition Fox, Armando. Contributed Book Chapter on Accessibility. <https://saasbook.info>
- *AUTOGRADING FOR SNAP!* Hello World Magazine, Issue 3, Autumn 2017 https://magazines-static.raspberrypi.org/issues/full_pdfs/000/000/004/original/HelloWorld03.pdf
- "Where are the Practical Computing Classes?" The Daily Californian, Op-Ed Jan. 31, 2014 <https://www.dailycal.org/2014/01/31/practical-computing-classes/>

Theses.....

- **Masters Thesis, 2016:** *Lambda: Autograding For Snap!*

Lambda is an autograding platform for Snap!, a blocks-based programming language. As an undergraduate, I contributed to designing the system, architecting code, and creating autograder tests for student projects. During my Master's Project, I created a server-side component for the autograder to support using LTI (Learning Tools Interoperability), an open educational standard, which allowed embedding the autograder into UC Berkeley's LMS. The autograder was used to trial a series of in-lab exercises, in comparison to the oral lab check-off questions students were answering.
<http://www2.eecs.berkeley.edu/Pubs/TechRpts/2018/EECS-2018-2.pdf>

Media and News

- CSEd Podcast: Guest Editor
S3xE4: Accessibility with Richard Ladner
https://csedpodcast.org/blog/season3_episode4/
- CSEd Podcast: Guest Host
S3xE3: Undergraduate Teaching Assistants with Michael Ball
https://csedpodcast.org/blog/season3_episode3/
- NPR: *Adding 'Beauty And Joy' To Obama's Push For Computer Science Teaching*. 2016-01-14.
<https://www.npr.org/sections/ed/2016/01/14/462954645/adding-beauty-and-joy-to-obamas-push>

Academic & Open Source Software

Snap!

Snap! is a blocks-based visual language designed to make teaching computer science easy, while exposing hard concepts like lambdas, recursion, and web APIs. I contribute to the core IDE, and I collaboratively designed, built and maintain the Snap! cloud-based project infrastructure, which currently supports more than 5 million projects and over 500,000 users.
<https://snap.berkeley.edu>

The Beauty and Joy of Computing

BJC is a university-level non-majors or a high school level AP Computer Science Principles course designed to broaden participation in computing. In addition to programming, the course emphasizes the context and implications of computing. I provide infrastructure maintenance, technical consulting and curriculum review. I contributed curriculum heavily to early versions of the course which are still used at UC Berkeley.
<https://bjc.berkeley.edu>

Flexextensions, Assignment Extension Management

"Flexextensions" is a web application that streamlines requesting, approving, and applying assignment extensions in Canvas. Originally piloted with support from Berkeley's Research, Teaching, and Learning (RTL) unit, the tool reached 10,000+ student enrollments across two semesters. I supervised a team of 12 students and led the campus integration with Canvas and partner units.
<https://github.com/berkeley-cdss/flexextensions>

Alonzo, A Staff Chatbot

Course staff chatbot that automates grading workflows, including in-class oral lab check-offs for CS10. Maintained across multiple generations of TAs.

<https://github.com/cs10/Alonzo>

Downshift

Prior maintainer of Downshift, an open source React component (3M weekly NPM downloads). I contributed accessibility enhancements and reviews.

<https://github.com/paypal/downshift>

Technical Skills

- **Frequent Programming Languages:** JavaScript, Ruby, Python, Snap!, SQL, Lua, bash, CSS/SASS, HTML
Less frequently used: Scheme, C, Java, Apex, Matlab
- **Development Tech:** Agile Development, RESTful design, Ruby on Rails, git, React, accessibility testing and compliance, PostgreSQL, Amazon Web Services / Google Cloud Platform, Heroku, Terraform, software testing, continuous integration
- **Media Engineering:** Semi-professional photographer, videography, online event production, audio recording, Final Cut Pro X, Adobe Creative Suite, Advanced Zoom programming

Last update July 25, 2026