

## Appointments **University of Colorado Boulder**

- Assistant Professor, Department of Information Science, 2016 – present
- By courtesy Computer Science

## Education **Massachusetts Institute of Technology**

- Doctorate of Philosophy in Media Arts and Sciences, 2012 – 2016
- Advisor: Mitchel Resnick
- Thesis: Family Creative Learning: Designing Structures to Engage Kids and Their Parents as Computational Creators
- Committee Members: Mitchel Resnick, Mizuko (Mimi) Ito, Jane Margolis

### **Massachusetts Institute of Technology**

- Masters of Science in Media Arts and Sciences, 2010 – 2012
- Advisor: Mitchel Resnick
- Thesis: Making Together: Creative Collaboration for Everyone

### **Massachusetts of Institute of Technology**

- Masters of Engineering in Computer Science and Engineering, 2007
- Advisor: Eric Klopfer
- Thesis: Open Blocks: An Extendable Framework for Block Programming Systems

### **Massachusetts Institute of Technology**

- Bachelors of Science in Computer Science and Engineering, 2006

## Interests

- Creative learning and computational fluency
- Digital inequality and broadening participation in computing
- Family learning with computing across diverse backgrounds
- Creative collaboration in online communities for children
- Human computer interaction for children

## Grants

PI, Institute of Museum and Library Services (IMLS) National Leadership Grant for Libraries, 2017 - 2020

- Families Creating Together: Engaging Children and Parents in Design-Based Activities for the Cultivation of Computational Literacy
- Amount: \$385,327

Co-PI, CU Office of Engagement and Outreach Faculty Grant, 2017-2018

- Communities Code Engaging Underrepresented Youth in Creative Computing
- Amount: \$23,800

PI, CU UROP Team Grant, 2017-2018

- Engaging Families in Creative Computing through Story-Making
- Amount: \$3,000

### Awards and Honors

- Nominated for Best Paper and Best Student Paper, International Conference of the Learning Science (ICLS), 2016
- Oxford Internet Institute Fellow, Summer Doctoral Program, 2015
- Computer Science Collaboration Project Mini-Grant for Engaging Hispanic/Latino(a) Youth for *Creatividad, Computacion, and Comunidad: Family Computer Science Nights at Agua Fria*, 2012
- National Science Foundation Graduate Fellowship, 2011
- Google Anita Borg Scholarship, 2011

### Affiliations

- Berkman Klein Center for Internet and Society at Harvard University: Faculty Associate (2016-2017), Fellow, (2015-2016)
- STELAR ITEST Fellow, 2017
- LA Makerspace: Advisory Board Member, 2014 – present
- Exploratorium, Tinkering Studio: Tinkerer-in-Residence, January 2015 & January 2016
- Children's Museum of Pittsburgh: Artist-in-Residence, August 2013

### Conference Proceedings (Peer-Reviewed)

- **Roque, R.,** Lin, K., & Liuzzi, R. (2016) "I'm not just a mom": Parents developing multiple roles in creative computing. In C. K. Looi, Polman, J., Cress, U., & Reimann, P., *Transforming learning, empowering learners: The International Conference of the Learning Sciences (ICLS) 2016, Volume 1* (pp. 663-670). Singapore: International Society of the Learning Sciences. **(Nominated for best paper and best student paper)**
- **Roque, R.,** Lin, K. & Liuzzi, R. (2015) Engaging parents as creative learning partners in computing. In Lindwall, O., Häkkinen, P., Koschmann, T., Tchounikine, P., & Ludvigsen, S. *Proceedings of the 2015 Computer-Supported Collaborative Learning (CSCL) Conference, Volume 2* (pp. 687-689). Göteborg, Sweden: International Society of the Learning Sciences.
- **Roque, R.,** Rusk, N., Beck, L., Chen, X. (2014) Family creative learning: Engaging parents and children as learning partners in creative technology workshops. In J. L. Polman, Kyza, E. A., O'Neill, D. K., Tabak, I., Penuel, W. R., Jurow, A. S., O'Connor, K., Lee, T., & D'Amico, L., *Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS) 2014, Volume 3* (pp. 1623-1624). Boulder, CO: International Society of the Learning Sciences.

- **Roque, R.**, Kafai, Y., and Fields, D. (2012) From tools to communities: Designs to Support Online Creative Collaboration in Scratch. In *Proceedings of 11<sup>th</sup> International Conference on Interaction Design and Children (IDC)*. (pp. 220-223) Bremen, Germany.
- **Roque, R.**, Rusk, N., Blanton, A. (2013) Youth roles and development of leadership in an online creative community. In Rummel, N., Kapur, M., Nathan, M., & Puntambekar, S. *Proceedings of the Computer Supported Collaborative Learning (CSCL) Conference. Volume 1*, (pp. 399-406) Madison, WI: International Society of the Learning Sciences.
- Kafai, Y., **Roque, R.**, Fields, D., Monroy-Hernandez, A. (2011) Collaboration by choice: Youth online creative collabs in Scratch. In T. Hirashima et al. (Eds.) (2011). *Proceedings of the 19th International Conference on Computers in Education*. (pp. 189-193) Chiang Mai, Thailand: Asia-Pacific Society for Computers in Education.
- Brennan, K., Valverde, A., Prempeh, J., **Roque, R.**, Chung, M. (2011) More than code: The significance of social interactions in young people's development as interactive media creators. In T. Bastiaens & M. Ebner (Eds.), *Proceedings of EdMedia: World Conference on Educational Media and Technology 2011* (pp. 2147-2156). Waynesville, NC: Association for the Advancement of Computing in Education (AACE). (**Outstanding Paper Award**)

#### Journal Articles (Peer-Reviewed)

- **Roque, R.**, Dasgupta, S., & Costanza-Shock, S. (2016) Children's civic engagement in the Scratch Online Community. *Social Sciences*. 5(4): 1-17.
- Kafai, Y., Fields, D., **Roque, R.**, Burke, Q., Monroy-Hernandez, A. (2012) Collaborative agency in youth online and offline creative production in Scratch. *Research and Practice In Technology Enhanced Learning (RPTEL)*, 7(2): 63-87.
- Jona, K., **Roque, R.**, Skolnik, J., Uttal, D., Rapp, D. (2011). Are remote labs worth the cost? Insights from a study of student perceptions of remote labs. *International Journal of Online Engineering*, 7(2), 48-53.
- Klopfer, E., Scheintaub, H., Huang, W., Wendel, D., and **Roque, R.** (2009) The Simulation Cycle: combining games, simulations, engineering, and science using StarLogo TNG. *E-Learning and Digital Media*, 6(1), 71-96.

#### Book Chapters, Essays

- **Roque, R.** (2016). Family Creative Learning. In Peppler, K., Kafai, Y., & Halverson, E. (Eds.) *Makeology: The maker movement and the future of learning*. New York, NY: Routledge.
- **Roque, R.**, Rusk, N., Resnick, M. (2016). Supporting diverse and creative collaboration in the Scratch online community. In Cress, U., Jeong, H., and Moskaliuk, J. (Eds.) *Mass Collaboration and Education*. Springer.
- **Roque, R.** (2015). Connecting creativity and coding: Creativity in the context of skills, literacy, and learning. In Cortesi, S. and Gasser, U. (Eds.) *Digitally Connected*. (pp. 57-59) The Social Science Research Network Electronic Paper Collection.

Paper  
Presentations,  
Panels,  
Workshops  
(Peer-Reviewed)

- **Roque, R.**, Rusk, N., Ito, M., & Nacu, D. (2017) Beyond initial engagement: Supporting youth development in creative online communities. *Panel presentation for the Digital Media and Learning Conference (DML)*, Irvine, CA.
- Fontaine, C., **Roque, R.**, & Rusk, N. (2017) Self-making: How youth and educators construct an evolving sense of identity on online platforms. *Panel presentation for the Digital Media and Learning Conference (DML)*, Irvine, CA.
- Martin, C.K., Sandherr, Jim, Acholonu, U., **Roque, R.**, Pinkard, N., McNamara. (2016) Making a difference: Design strategies to engage underrepresented communities in maker space. *Panel presentation for the Digital Media and Learning Conference (DML)*, Irvine, CA.
- **Roque, R.**, Rusk, N., Schilling, E., Leggett, S., Martin, C., Protopapa, S., Avila, C., Haduong, P. (2015) Hip-hop dance and Scratch: Interest-based pathways into computational fluency. *Workshop for the Digital Media and Learning Conference (DML)*, Los Angeles, CA.
- Garrity, C., **Roque, R.**, Onuoha, F. (2015). Hip-hop Scratch: Dance, music, and coding. Workshop for the *Intel Computer Clubhouse Network Annual Conference*. Portland, OR.
- Kafai, Y., Rusk, N., Burke, Q., Peppler, K., Fields, D., **Roque, R.**, Elinich, K., Telhan, O., Magnifico, A. (2014) Motivating and broadening participation: Competitions, contests, challenges, and circles for supporting STEM learning. Symposium at the *11<sup>th</sup> Annual Conference of the Learning Sciences (ICLS)*. Boulder, CO.
- **Roque, R.** & Otts, S. (2014) Program your world: Scratch and MaKey MaKey. *Workshop for the Allied Media Conference (AMC)*, Detroit, MI.
- DiSalvo, B., **Roque, R.**, Stevens, R., Takeuchi, L., and Taylor, K. (2014) Learning with technology: Different perspectives from low-income families. Symposium for *American Education Researchers Association (AERA)*. Philadelphia, PA.
- **Roque, R.** and Onuoha, F. (2014) Beyond the project showcase: Engaging parents and children in design-based activities with computing. Presentation for the *Intel Computer Clubhouse Network Annual Conference*. Denver, CO.
- **Roque, R.**, Onuoha, F., and Fernando, C. (2014) Scratch and MaKey MaKey: Designing across digital and physical experiences. Workshop for the *Intel Computer Clubhouse Network Annual Conference*. Denver, CO.
- Peyina, L., **Roque, R.**, Wardrip, P., Ahn, J., and Shaprio, B. (2014) Designing futures for peer-2-peer learning @ CSCW. Workshop for *Computer Supported Cooperative Work and Social Computing (CSCW)*. Baltimore, MD.
- **Roque, R.** (2014) Designing creative learning experiences for families. Short Talk at the Digital Media Learning (DML) conference. Boston, MA.
- **Roque, R.** (2014) Supporting family learning through digital and physical making. Workshop at Mozilla Festival (Mozfest) 2013. London, UK.
- **Roque, R.** (2013) The family that creates together: Designing creative learning experiences for families. Poster presentation for the Digital Fabrication and Making in Education Workshop at the *12<sup>th</sup> International Conference on Interaction Design and Children*

(IDC). New York, NY.

- **Roque, R.** and Onuoha, F. (2013) A family that creates together: Designing creative learning experiences for families. Presentation for *Intel Computer Clubhouse Network*, Annual Conference. Boston, MA.
- **Roque, R.** (2013) Understanding parental perceptions around computing and creativity. Presentation for Panel “Action Research and Organizational Learning” at the 2013 *Student Research Conference at Harvard University*. Cambridge, MA
- **Roque, R.** (2013) A family that creates together: Designing creative technology workshops for families. Roundtable at *Digital Media and Learning Conference (DML)*. Chicago, IL.
- Wardrip, P., Shapiro, B., Forte, A., Brennan, K., and **Roque, R.** (2013) CSCW and education: Viewing education as a site of work practice. Proceedings of the 2013 conference on *Computer Supported Cooperative Work (CSCW)*. San Antonio, TX.
- **Roque, R.** (2012) Designing creative technology playgrounds for families. Workshop at the 2012 *Mozilla Festival (Mozfest)*. London, UK.
- **Roque, R.** (2012) Creating technologies of their own: Examining young women’s participation in an online programming community. Presentation at the 2012 *Girls and Digital Culture Conference*. London, UK.
- Brennan, K. and **Roque, R.** (2012) A culture of sharing: Exploring ways to support connections among designers of digital media. Workshop at the 2012 *Digital Media and Learning (DML) Conference*. San Francisco, CA.
- **Roque, R.**, Fields, D., Siegal, J., Low, D., Kafai, Y. (2012) A clubhouse of their own: A role-playing game society in Scratch programming community. *American Education Researchers Association (AERA)* conference. Vancouver, Canada.
- Siegal, J., **Roque, R.**, Low, D., and Kafai, Y. (2012) Understanding the creative and collaborative literacy practices in the Scratch Online Community: A role playing case study. Panel at the 2012 *University of Pennsylvania Ethnography Forum*. Philadelphia, Pennsylvania.
- Brennan, K., Maloney, J., & **Roque, R.** (2011). Teaching and learning with Scratch. Discussion session conducted at SIGCSE conference, Dallas, TX.
- Wolz, U., Brennan, K., Maloney, J., & **Roque, R.** (2011). What makes a good Scratch program? Examining structure and style in Scratch programs. Discussion session conducted at SIGCSE conference, Dallas, TX.
- Sauter, M., Rapp, D. N., Uttal, D., Jona, K., Skolnik, J., & **Roque, R.** (2011). Grounding students' understandings of 'doing science' in actual lab experiences. *American Educational Research Association (AERA)*, New Orleans, LA.
- Braafladt, K., Czarnecki, K., Matthias, C., Myers, B., Nelson, J., and **Roque, R.** (2010) Turtles, Gobos, Greeps and Brick Blocks: Design-based Learning Models in Informal Settings. Panel at Games, Learning and Society. Madison, WI.
- Skolnik, J. and **Roque, R.** (2010) The iLab Network: Broadening Access to Hands-on STEM Learning via Remote Online Laboratories. Presentation at International Online

Conference.

- Skolnik, J., **Roque, R.**, Sauter, M., Jona, K., Uttal, D., and Rapp, D.N. (2010) *Student discourse about scientific inquiry as a function of simulated and remote learning experiences*. Poster to the 20<sup>th</sup> annual meeting of the Society for Text and Discourse, Chicago, Illinois.

**Presentations,  
Panels, and  
Workshops  
(Invited)**

- **Roque, R.** (2017) Growing Up in Scratch. Keynote for Scratch@Bordeaux Conference. Bordeaux, France.
- **Roque, R.** (2017) Family Creative Learning: Structures to Engage Children and Parents as Computational Creators. Equity in Education Meeting at Data and Society. New York, NY.
- **Roque, R.** (2016) Creative Collaboration in Scratch. INFO 3501 Peer Production and Crowd Sourcing INFO 3501 Guest Lecture. Boulder, CO.
- **Roque, R.**, Ito, M., Pinkard, N. (2016) Pathways to Participation. Keynote Panel for Scratch@MIT Conference. Cambridge, MA.
- **Roque, R.** (2015) Convert Ideas Into Reality with Scratch and MaKey MaKey. Workshop at FabLearn Asia. Tokyo, Japan.
- **Invited Participant.** (2015) New Profit Early Learning Fund Convening. Sesame Workshop. New York City, NY.
- **Roque, R.** (2015). Family Creative Learning. CharlesX Colloquim hosted by HarvardX and MITX. Cambridge, MA.
- **Roque, R.** (2015). Designing supports for creative learning. Microsoft Minecraft Educators Summit. Los Angeles, CA.
- **Roque, R.** (2015) Family Creative Learning. Brown bag talk at Tinkering Studio, Exploratorium. San Francisco, CA.
- **Roque, R.**, Protopapa, S., Musarra, C., Martin, C., Avila, C. (2014) Scratch and hip-hop dance. Workshop at the Juniper Serra Library. Los Angeles, CA.
- **Roque, R.** (2014) Family Creative Learning. Opening Keynote for Scratch Day @ NYC.
- **Roque, R.** (2014) Scratch and Family Creative Learning. Massachusetts Exploring Computer Science. Cambridge, MA.
- Resnick, M., Dasgupta, S., **Roque, R.**, Rusk, N., Bers, M. (2014) Looking Back, Looking Ahead. Opening Keynote for Scratch@MIT 2014 conference. Cambridge, MA.
- **Invited Participant.** (2014) Research on Making and Learning. Children's Museum of Pittsburgh. Pittsburgh, PA.
- **Roque, R.** (2014) Sowing the seeds for a more creative society. Lunch talk at Girls Who Code Boston, Cambridge, MA.
- **Roque, R.** (2014) Getting started with MaKey MaKey. Workshop at Google 4 Doodle. Mountain View, CA.



- **Invited Participant.** (2014) Global youth and digital symposium. Harvard University Berkman Center. Cambridge, MA.
- Waldo, J., **Roque, R.**, Jacobs, J., & Magliozzi, A. (2014) Technology and Education Panel. Harvard University WeCode Conference, Cambridge, MA.
- Rusk, N., Schmitt, P., **Roque, R.** (2014) Motivation and online learning networks. Workshop at MIT Media Lab. Cambridge, MA.
- **Roque, R.** (2013) Computer animation with Scratch. Workshop for Lights On GUTS and GUTS y Girls celebration. Santa Fe, NM.
- **Roque, R.** (2012) Sowing the seeds for a more creative society. Invited lecture at Greater Hartford Academy of Math and Science. Hartford, CT.
- **Roque, R.** (2012) Creativity Without Bounds: Build Your Own Games, Stories, and Animations in Scratch. Workshop for Digital Family Summit. Philadelphia, PN.
- **Roque, R.** (2012) Sowing the seeds for a more creative society. Talk for Fathom Information Design. Cambridge, MA.
- **Roque, R.** and Chung, M. (2012) Getting Started with Scratch. Workshop at the 2<sup>nd</sup> Massachusetts School Librarians Association. Hyannis, MA.
- **Roque, R.** and Siegel, J. (2011) Mediating the Power of Networked Learning. Lecture for the Power of Networked Learning course at Harvard University. Cambridge, MA.
- Chow, C., Carey, C., **Roque, R.**, and Walsh, J. (2011) The Serious Business of Play. Panel at National Coalition of Girls' Schools. Wellesley, MA.

## Professional Experience

### **Lifelong Kindergarten, MIT Media Lab**

Research Assistant, Aug 2010 – Aug 2016

- Research with Professor Mitchel Resnick and Lifelong Kindergarten group studying the role of social support in engaging youth creative learning experiences with computing.

### **Office of STEM Education Partnerships, Northwestern University**

Software Developer, Dec 2008 – Jul 2010

- Developed, designed and managed under the guidance of Professor Kemi Jona the technical development of remote online labs or iLabs that allow students to access experimental equipment housed in universities around the world.

### **Project GUTS, Santa Fe Institute**

Regional Coordinator, Jun 2009 – Jun 2010

- Coordinated the expansion of after-school Project GUTS clubs into the Chicago area from New Mexico, where the program originated, under the guidance of Irene Lee.

### **StarLogo TNG, MIT Scheller Teacher Education Program**

Project Manager, Feb 2008 – Oct 2008

- Collaborated with Department of Homeland Security to develop curricula under the direction of Professor Eric Klopfer using Starlogo TNG for middle school

students to pursue math, science, and technology.

- Developed and led student workshops and professional development workshops for middle and high school teachers in the greater Boston area.

### **StarLogo TNG, MIT Scheller Teacher Education Program**

Research Assistant, Feb 2006 – Aug 2007

- Created OpenBlocks, an extendable framework for graphical programming systems, allowing any developer to build their own graphical programming environment like Starlogo TNG. Applied framework to EvoBeaker, an educational software for middle school students to study complex biological simulations. Used by Google to create first version of App Inventor for Android.
- Managed redesign of front-end interface and implementation of Starlogo TNG with team of 4 developers to increase robustness, scalability, performance, and extendibility of software.

### **Physical Language Workshop, MIT Media Lab**

Research Assistant, Jun 2003 – Jan 2004

- Designed and implemented prototypes for Mini, a simple web pixel editor, and Piquant Café, a graphical and interactive chat room, in Java, for online digital design community Open Studio under the direction of Professor John Maeda.

## Teaching

- Instructor, INFO 3505/5505 Designing for Creativity and Learning (Fall 2017)
- Instructor, INFO 1201 Computational Reasoning 1 (Spring 2017)
- Instructor, INFO 1111 Representations (Fall 2016). Co-instructor: Jed Brubaker
- Instructor, MAS.s62 *Unpacking Impact: Reflecting As We Make* (Fall 2015). Co-instructors: Sayamindu Dasgupta, J. Nathan Matias.
- Teaching Assistant, MAS.712 *Learning Creative Learning* (Spring 2013). Instructor: Mitchel Resnick, Natalie Rusk, Philipp Schmidt. (16 local students, over 24,000 registered online students)

## Service

- CMCI Undergraduate Curriculum Committee, 2017 – present
- CU Information Science Undergraduate Curriculum Committee, 2016 – present
- CMCI Scholarship Committee, 2017
- CU Information Science Awards and Nominations Chair, 2016-2017
- Graduate Women at MIT Mentoring, Member, Co-Chair, Event Lead, 2012 - 2016
- MIT Media Lab Student Committee, Member, 2011 – 2016
- MIT Media Lab Diversity Committee, 2011 – 2016
- MIT Media Lab Festival of Learning Organizing Committee, 2011 – 2012



## Mentorship

- 2017-2018
  - CU Information Science: Junnan Yu (PhD '22)
  - CU ATLAS: Peter Gyory (S.M. '20)
- 2016-2017
  - From CU Boulder Leeds: Marissa Wajda (S.B. '18)
  - From CU ATLAS: Fujiko Yamamoto Robledo (S.M. '19)
- 2015-2016
  - From Harvard Graduate School of Education: Ariana Siegel (Ed. M), Irene Cho (Ed.M.)
- 2014-2015
  - From the Harvard Graduate School of Education: Nicholas Giacobbe (Ed.M.), Rupal Jain (Ed.M.), Ana Medina (Ed.M.), Erica Rabner (Ed.M.), Cindy Yang (Ed.M.)
  - From MIT: Anthony Vazquez (S.B. '15)
- 2013-2014
  - From the Harvard Graduate School of Education: Saskia Leggett (Ed.M.), Karina Lin (Ed.M.), Richard Liuzzi (Ed.M.)
  - From MIT: Noalee Harel (S.B. '15)
  - From Wellesley College: Karina Chan (S.B. '16)
- 2012-2013
  - From Harvard Graduate School of Education: Xiaodi Chen (Ed.M.)
  - From MIT: Yamile Pariente (S.B. '14)

## Memberships

- Association for Computing Machinery, 2010 – present
- American Educators Research Association, 2011 - present
- Eta Kappa Nu National Honor Society, 2005
- Sigma Kappa Sorority, 2003 – 2006