

This is a section of [doi:10.7551/mitpress/11558.001.0001](https://doi.org/10.7551/mitpress/11558.001.0001)

Inventive Minds

Marvin Minsky on Education

By: Marvin Minsky

Edited by: Cynthia Solomon, Xiao Xiao

Citation:

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DOI: 10.7551/mitpress/11558.001.0001

ISBN (electronic): 9780262350273

Publisher: The MIT Press

Published: 2019



The MIT Press

Contributors

Hal Abelson is a Professor of Electrical Engineering and Computer Science at MIT, a fellow of the IEEE, and a founding director of the Creative Commons and the Free Software Foundation. He directed the first implementation of Logo for Apple II, coordinated the MIT OpenCourseWare initiative, served as cochair of the MIT Council on Education Technology, and is a former director of the Center for Democracy and Technology. He leads the development of MIT App Inventor.

Walter Bender is the former director of the MIT Media Lab (2000–2006) and the MIT Media Lab’s Electronic Publishing Group (1985–2006). He helped launch One Laptop per Child in 2006, and in 2008 founded the nonprofit organization Sugar Labs, where he currently serves as the executive director.

Alan Kay, in 1968, while a doctoral student at the University of Utah, built a cardboard prototype of the Dynabook, “a personal computer for children of all ages.” In 1970 he joined Xerox PARC, where he advanced the development of graphical user interfaces and Ethernet technologies, and led the development of Smalltalk and the Alto computer. He has served as

Chief Scientist at Atari, Senior Apple Fellow (Vivarium Project), Vice President of Research and Development at the Walt Disney Company, and Senior Fellow at Hewlett Packard Labs. In 2001, he founded Viewpoints Research Institute, where Squeak and eToys were developed.

Margaret Minsky creates multimedia artifacts exploring learning, improvisation, and thought. Her recent investigations concern embodied interaction with technology aimed at increasing cognitive, social, and physical well-being. She recently completed a residency at the ATLAS Center, an interdisciplinary laboratory at the University of Colorado Boulder. She developed the first technique for creating haptic textures as part of her doctoral research at the MIT Media Lab. Dr. Minsky previously directed research at Atari Cambridge Research and Interval Research Corporation.

Brian Silverman has been involved in the design and development of learning environments for children since he was an MIT undergraduate in the 1970s. He continued this work by designing dozens of Logo versions (including LogoWriter and MicroWorlds), Scratch, LEGO robotics, TurtleArt, and the PicoCricket. Brian has been a Visiting Scientist at the MIT Media Lab, enjoys recreational math, and is a computer scientist and master tinkerer. He once even built a tic-tac-toe playing computer out of Tinkertoys. He is currently the president of the Playful Invention Company.

Cynthia Solomon created Logo, the first programming language for children, along with Wally Feurzeig and Seymour Papert at Bolt, Beranek and Newman. She and Papert continued Logo

research at the MIT Artificial Intelligence Lab where the Logo environment was extended to music and robotics with the collaboration of Marvin Minsky. She received her EdD at Harvard University in 1985 and was awarded both the National Center for Women & Information Technology Pioneer Award and the Constructionism Lifetime Achievement Award in 2016.

Gary Stager is one of the world's leading experts and advocates for learning-by-doing, computer programming, and robotics in classrooms. Gary is the founder of the Constructing Modern Knowledge summer institute for educators and is coauthor of *Invent to Learn: Making, Tinkering, and Engineering in the Classroom*. His writings have appeared in (among other places) the *New York Times*, the *Huffington Post*, the *Wall Street Journal*, and *Wired*.

Mike Travers is a software engineer and data architect in the San Francisco Bay Area. He has played a lead role in a variety of software companies building knowledge-based computational tools for the life sciences, including drug discovery, synthetic biology, clinical informatics, and genomic medicine applications.

Mike holds degrees in mathematics and media arts and sciences from MIT, where he did research on artificial life, learning environments, and agent-based computing at the Media Lab. His work focuses on the intersection of knowledge representation, visualization, and discovery. An experienced interaction designer, he has exhibited interactive installations at the SIGGRAPH Art Show and the Boston Computer Museum. He has held research positions at the MIT AI Lab, IBM, SRI, and the Centre Mondial in Paris.

Patrick Henry Winston is Ford Professor of Artificial Intelligence and MacVicar Faculty Fellow at MIT. His Genesis research group focuses on developing a computational account of human intelligence and how human intelligence differs from that of other species, with special attention to modeling human story comprehension.

Xiao Xiao holds a degree in Computer Science from MIT, and completed her Masters and PhD at the MIT Media Lab in 2016. Drawing from her training as a classical pianist, she created music learning technologies for her doctorate that focused on the role of the body in the development of the musical mind.

Xiao currently designs multimedia art installations and continues to pursue learning-related research as an affiliate of the Media Lab and at UPMC (University Pierre and Marie Curie), Paris, France. New installations will be on permanent exhibit at the Historic New Orleans Collection in 2019.

To reflect on her own learning, Xiao began teaching herself how to play the theremin in 2017, inventing new techniques inspired by her experiences with the piano, coding, interaction design, drawing, yoga, and dance. As a thereminist, she has performed at venues such as the Music Box Village in New Orleans and Joe's Pub in New York.

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This book was set in ITC Stone Serif Std by Toppan Best-set Premedia Limited. Printed and bound in the United States of America.

Library of Congress Cataloging-in-Publication Data

Names: Minsky, Marvin, 1927-2016, author. | Solomon, Cynthia, editor. | Xiao, Xiao, editor.

Title: Inventive minds : Marvin Minsky on education / Marvin Minsky ; edited by Cynthia Solomon and Xiao Xiao ; illustrated by Xiao Xiao.

Description: Cambridge, MA : MIT Press, [2018] | Includes bibliographical references and index.

Identifiers: LCCN 2018011627 | ISBN 9780262039093 (hardcover : alk. paper)

Subjects: LCSH: Critical thinking--Study and teaching. | Thought and thinking--Study and teaching. | Learning, Psychology of. | Minsky, Marvin, 1927-2016

Classification: LCC LB1590.3 .M555 2018 | DDC 370.15/2--dc23 LC record available at <https://lccn.loc.gov/2018011627>

10 9 8 7 6 5 4 3 2 1