

# Finding Aid to The HistoryMakers® Video Oral History with Ayanna Howard

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## Overview of the Collection

<b>Repository:</b>	The HistoryMakers®1900 S. Michigan Avenue Chicago, Illinois 60616 info@thehistorymakers.com www.thehistorymakers.com
<b>Creator:</b>	Howard, Ayanna
<b>Title:</b>	The HistoryMakers® Video Oral History Interview with Ayanna Howard,
<b>Dates:</b>	April 15, 2011
<b>Bulk Dates:</b>	2011
<b>Physical Description:</b>	7 uncompressed MOV digital video files (3:12:38).
<b>Abstract:</b>	Electrical engineer Ayanna Howard (1972 - ) was the creator of the SnoMote robots and the founder of the Human-Automation Systems Lab at Georgia Institute of Technology. Howard was interviewed by The HistoryMakers® on April 15, 2011, in Atlanta, Georgia. This collection is comprised of the original video footage of the interview.
<b>Identification:</b>	A2011_017
<b>Language:</b>	The interview and records are in English.

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## Biographical Note by The HistoryMakers®

Electrical engineer Ayanna Howard was born on January 24, 1972 in Providence, Rhode Island. After graduating from John Muir High School in Pasadena, California, she earned her B.S. degree in engineering from Brown University in 1993. Howard continued her studies and received her M.S. and Ph.D. degrees in engineering from the University of Southern California in 1994 and 1999, respectively. Her final dissertation was entitled, "Recursive Learning for Deformable Object Manipulation."

Throughout her studies at the University of Southern California, Howard worked

at NASA's Jet Propulsion Laboratory in Pasadena, California. She held a number of positions working with the organization until 2005, including computer scientist, information systems engineer, robotics researcher and senior robotics researcher. Howard continued her education by attending Claremont Graduate University and earning her M.B.A. degree in 2005. That same year, Howard was offered a position at the Georgia Institute of Technology, where she started her own laboratory while working as an associate professor in the School of Electrical and Computer Engineering. Her research group, the Human-Automation Systems (HumAnS) Lab, has focused on how to enhance the autonomy of robot functionality.

Howard's work in robotics and engineering has garnered considerable attention. In 2008, her SnoMote robots were internationally recognized for their ability to study the impact of climate change in such remote areas as the Antarctic ice shelves. She has published more than one hundred academic papers, and she has been the recipient of several prestigious awards including the 2001 Lew Allen Award for Excellence in Research from the Jet Propulsion Laboratory, the Institute of Electrical and Electronic Engineers Early Career Award in Robotics and Automation in 2005, and the National Society of Black Engineers Janice Lampkin Educator Award in 2009.

Howard is married to Jose Torres. She has one son and two stepsons.

Ayanna Howard was interviewed by *The HistoryMakers* on April 15, 2011.

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## Scope and Content

This life oral history interview with Ayanna Howard was conducted by Larry Crowe on April 15, 2011, in Atlanta, Georgia, and was recorded on 7 uncompressed MOV digital video files. Electrical engineer Ayanna Howard (1972 - ) was the creator of the SnoMote robots and the founder of the Human-Automation Systems Lab at Georgia Institute of Technology.

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## Restrictions

### Restrictions on Access

Restrictions may be applied on a case-by-case basis at the discretion of The HistoryMakers®.

## Restrictions on Use

All use of materials and use credits must be pre-approved by The HistoryMakers®. Appropriate credit must be given. Copyright is held by The HistoryMakers®.

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## Related Material

Information about the administrative functions involved in scheduling, researching, and producing the interview, as well as correspondence with the interview subject is stored electronically both on The HistoryMakers® server and in two databases maintained by The HistoryMakers®, though this information is not included in this finding aid.

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## Controlled Access Terms

This interview collection is indexed under the following controlled access subject terms.

### Persons:

Howard, Ayanna

Crowe, Larry (Interviewer)

Hickey, Matthew (Videographer)

### Subjects:

African Americans--Interviews

Howard, Ayanna--Interviews

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African American engineers--Interviews

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## Organizations:

HistoryMakers® (Video oral history collection)

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The HistoryMakers® African American Video Oral History Collection

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Jet Propulsion Laboratory (U.S.) Georgia Institute of Technology

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## **Occupations:**

Electrical Engineer

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## **HistoryMakers® Category:**

ScienceMakers

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## **Administrative Information**

### **Custodial History**

Interview footage was recorded by The HistoryMakers®. All rights to the interview have been transferred to The HistoryMakers® by the interview subject through a signed interview release form. Signed interview release forms have been deposited with Jenner & Block, LLP, Chicago.

### **Preferred Citation**

The HistoryMakers® Video Oral History Interview with Ayanna Howard, April 15, 2011. The HistoryMakers® African American Video Oral History Collection, 1900 S. Michigan Avenue, Chicago, Illinois.

### **Processing Information**

This interview collection was processed and encoded on 2/5/2020 by The HistoryMakers® staff. The finding aid was created adhering to the following standards: DACS, AACR2, and the Oral History Cataloging Manual (Matters 1995).

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## Other Finding Aid

A Microsoft Access contact database and a FileMaker Pro tracking database, both maintained by The HistoryMakers®, keep track of the administrative functions involved in scheduling, researching, and producing the interview.

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## Detailed Description of the Collection

### Series I: Original Interview Footage

Video Oral History Interview with Ayanna Howard, Section  
A2011\_017\_001\_001, TRT: 1:28:30 2011/04/15

Ayanna Howard slates her interview and shares her favorites. Howard's mother, Johnetta MacCalla was born in the 1940s in Monroe, Louisiana. She was the third-generation of her family to attend college. Howard's father, Eric Conway MacCalla, was born in Bridgeport, Connecticut, also in the 1940s. His ancestors were of Jamaican descent. His father worked for the United States Postal Service and his mother worked as a nurse. Johnetta and Eric met as students at Brown University. They both went on to study at Stanford University and then the University of Southern California, where they earned their Ph.D. degrees in engineering. Howard was born on January 24, 1972, the first of two children. She and her brother grew up in Altadena, California, in a neighborhood near the San Gabriel Mountain. Howard's parents were involved in her education growing up, although they were busy with their business, Automated Switching and Controls.

African American families--California.

Education, Higher--United States.

Altadena (Ca.).

Video Oral History Interview with Ayanna Howard, Section  
A2011\_017\_001\_002, TRT: 2:29:45 2011/04/15

Ayanna Howard describes her childhood home in Altadena, California. Her family often did not have the latest commercial appliances, but they always had the supplies needed to build and fix them since her parents

were in electrical engineering and computer programming. Her family was Catholic. Howard recalls her elementary school years at Loma Alta Elementary School, where one of her favorite teachers was her fourth and fifth grade teacher. During this time, she enjoyed watching "Bionic Woman," on television. She then attended Elliott Middle School, where white students from Sierra Madre were bussed into her school, and her parents pushed the school to let Howard take algebra and geometry early. At John Muir High School, Howard was respected as "the smart one," and her physics teacher convinced her to consider a career in physics, particularly after Howard did not enjoy her biology class. Howard graduated as salutatorian in 1989.

African American families--California.

Education, Higher--United States.

African Americans--Childhood and youth.

Physics.

Video Oral History Interview with Ayanna Howard, Section  
A2011\_017\_001\_003, TRT: 3:31:03 2011/04/15

Ayanna Howard recalls working at the California Institute of Technology during high school and a high school science project. Following her high school graduation in 1989, she decided to attend Brown University. Howard notes that this was the first year of Brown University's need-blind admissions and about a hundred black and Hispanic students were admitted, although only about six black students graduated with their B.S. degrees in engineering in 1993. Amongst her participation in other student groups, Howard served as president of the school's chapter of the National Society of Black Engineers. Howard recalls her transition to college and her determination to catch up academically with her peers. She explains that her hard work at Brown University prepared her for her graduate studies at the University of Southern California. During college, Howard worked at the Jet Propulsion Laboratory, where she gained experience in computer programming and artificial intelligence.

California Institute of Technology.

National Society of Black Engineers (U.S.).

Brown University.

University of Southern California. Graduate School.

Engineering--Study and teaching--United States.

Computer science--Education (Higher).

African American college students--California.

African Americans--Education (Higher)--Rhode Island--  
Providence.

Video Oral History Interview with Ayanna Howard, Section  
A2011\_017\_001\_004, TRT: 4:30:19 2011/04/15

Ayanna Howard discusses the role of robotics in the early 1990s and the fear that robots would take working-class jobs. After explaining the difference between animatronics and robots, Howard discusses her graduate project at the University of Southern California, where she designed a robot that could pick up garbage bags with unknown contents and respond to shifts in its weight. Howard earned her M.S. and Ph.D. degrees in 1993 and 1999, respectively. Throughout her graduate studies, Howard worked at the Jet Propulsion Laboratory, and continued to work there after her graduation from the University of Southern California, when she helped to develop navigation methods for robots in Mars explorations. Howard explains the process of sensing, thinking and acting in robotics, and reflects on how sensor technology has improved and become more readily accessible to the public within the last twenty years, citing the X-Box Kinect as an example.

African Americans--Education (Higher)--Rhode Island--  
Providence.

Robotics.

University of Southern California. Graduate School.

Video Oral History Interview with Ayanna Howard, Section  
A2011\_017\_001\_005, TRT: 5:29:43 2011/04/15

Ayanna Howard discusses her research at the Jet Propulsion Laboratory with the Mars Rover navigation systems and terrain traversability. During her time at Jet Propulsion Laboratory, Howard was involved in educational outreach programs and also earned her

M.B.A. degree from Claremont Graduate University in 2005. Due to cuts in funding for robotics, Howard left Jet Propulsion Laboratory in 2005 to pursue a career in academia, establishing the Human Automation Systems (HumAnS) Laboratory at Georgia Institute of Technology. She compares the different focuses of robotics technology in the United States and Asian countries, emphasizing the push for adaptive learning in the United States. She also considers the ethics involved in robotics in conjunction with the automated car produced by Carnegie Mellon University. She then discusses her current research projects in robots for children with disabilities and the SnoMotes, robots designed to study the melting glaciers. Jet Propulsion Laboratory.

Georgia Institute of Technology--Human Automation Systems (HumAnS) Laboratory.

Computer science--Education (Higher).

Education--Adaptive learning.

Engineering--Robotics.

Video Oral History Interview with Ayanna Howard, Section  
A2011\_017\_001\_006, TRT: 6:35:04 2011/04/15

Ayanna Howard concludes her remarks about designing robots for children with disabilities. She then discusses her appointment to serve as chair of the robotics graduate program at Georgia Institute of Technology in 2010. Looking toward the future, Howard emphasizes access to information as a key area of advances in robotics. After describing the "uncanny valley" in robotics and "robot trust", Howard describes the "laws of robotics," which were derived from Isaac Asimov's books. She then talks about her belief that robots will be integrated into society and the fear that robots will replace human workers. She expresses her concern for the African American community in education, particularly in math and sciences. In terms of her future, Howard hopes her robots will make a difference in the lives of people and will be recognized by the Academy. Howard talks about her parents, her husband and her children.

Georgia Institute of Technology.

Mathematics--Study and teaching--United States.

Robotics.

African American families--Georgia.

Computers and people with disabilities--United States.

Robotics.

Science--Study and teaching.

Video Oral History Interview with Ayanna Howard, Section  
A2011\_017\_001\_007, TRT: 7:08:14 2011/04/15

Ayanna Howard describes a picture from the Mars Rover landing in 2004, which is the background for the interview. She then describes how she would like to be remembered—as someone who changed the world with her research and innovation, and someone who changed with world with her wisdom.

Computers and people with disabilities--United States