Reenactment Topic:

First Computer Program To Ran on a Computer

Presented By:
David Wei, Anthony Tellier, Ahmed Hafeez, Christian Munguia

What exactly is this historic moment?

Researchers Frederic Williams, Tom Kilburn, and Geoff Tootill from the University of Manchester created the Small-Scale Experimental Machine (SSEM), commonly referred to as the Manchester "Baby." This device was designed to trial a novel memory technology devised by Williams and Kilburn, later known as the Williams Tube. This tube represented the first high-speed electronic random access memory for computers. On June 21st, 1948, the Baby successfully executed its inaugural program, which Kilburn had crafted with seventeen instructions. This marked the first occasion that a program ran on a digital, electronic, stored-program computer.

Fidelity of Reenactment and Technological Context:

The reenactment of the Manchester Baby's operations stays true to the original technology of the time. Initially, the Baby's simple input and output facilities included just a keyboard and a screen. By April 1949, the team had added 5-track paper tape, enhancing its functionality. This upgrade mirrored the technological improvements of the era and was comparable to systems like the Cambridge EDSAC. Although the EDSAC was more advanced, it is the Manchester Baby that is credited as the pioneer of the stored-program concept. As historical reviews suggest, "Most scholars do not now consider this as a disqualification and in any case 5-track paper tape input/output was added to the enhanced Baby by April 1949" (“Milestone:The Manchester University ‘Baby’ computer;SSEM”). This careful attention to detail ensures that the reenactments not only entertain but also educate by demonstrating the technological strides made during that time.

Historical Significance and Innovation Description:

The Manchester Baby's achievement on June 21, 1948, marked a turning point in computing history. It was the first time a computer ran a program stored entirely in its memory. This was a monumental step forward from earlier methods where changing a program meant physically altering the machine. The Baby's program, though consisting of only 25 instructions, was crucial in proving that complex calculations could be automated. "The most difficult problem in the construction of large-scale digital computers continues to be the question of how to build a memory" (“Milestone:The Manchester University ‘Baby’ computer;SSEM”). This challenge was addressed by the introduction of the Williams Tube, developed by Williams and Kilburn, which facilitated these calculations and laid the groundwork for the development of modern RAM.

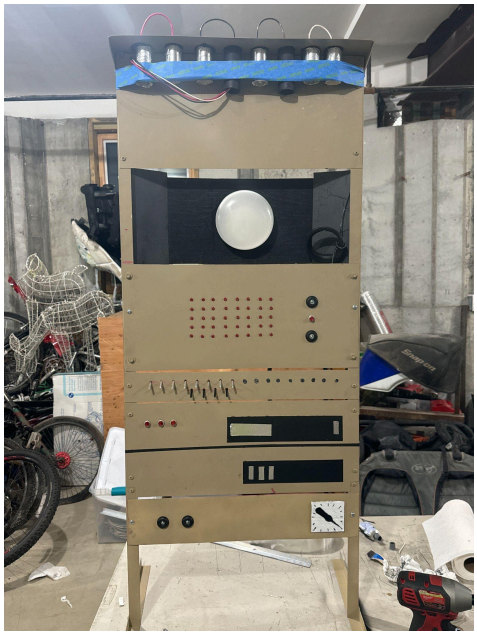
Contribution to Research and Wider Implications:

The Manchester Baby was a product of its time, reflecting the intensive research into memory technologies following World War II. This era saw researchers at MIT and other institutions exploring various potential memory solutions, including Cathode Ray Tubes (CRTs)

for radar systems. Frederic Williams' visits to MIT in the mid-1940s were pivotal. He noted the limitations of CRTs for computer storage, specifically that "CRTs could not be used unmodified for computer storage because the charge leaked away in about 0.2 seconds. Some means of automatic refresh was needed" ("Milestone:The Manchester University 'Baby' computer; SSEM"). This insight led to the development of the Williams Tube, which addressed these issues and enabled the storage of information in a form that was both accessible and stable. Williams and Kilburn's work at Manchester significantly advanced the field of computing and exemplified the collaborative and international nature of scientific research during that transformative period.

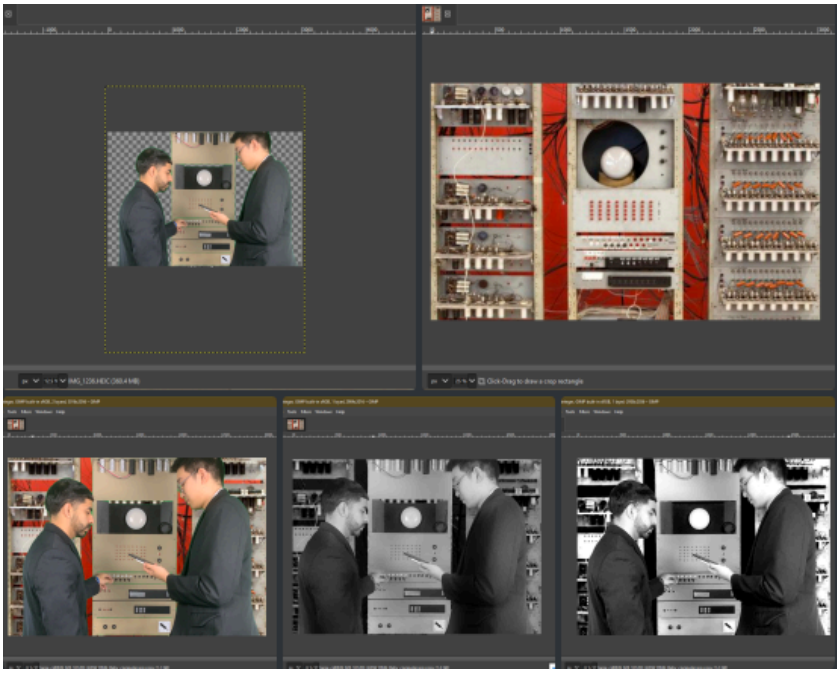
Our progress to make the reenactment:

We couldn't find a 3D model of the Manchester Baby to use as a virtual prop. So instead we decided to make a replica of the Manchester Baby. For the frame we used aluminum angle iron, sheet metal for the front, and pvc pipe wrapped in metal tape for the silver tubes. Black spray paint was used for the black tubes, scrap wire was used, a floodlight for the Williams tube, screws for the lights, and nails to simulate the switches.

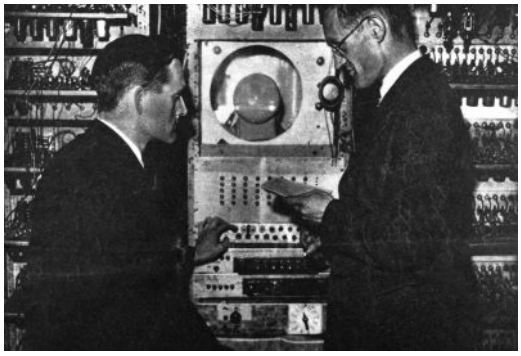


Once that was created we reserved a spot in the multimedia lab to recreate the photo of Frederic Williams and Tom Kilburn standing in front of the Manchester Baby. One of them was in charge of bringing the clothing needed for the reenactment, which was a couple of suit jackets, and another person was in charge of bringing the replica of the Manchester Baby to the multimedia lab. With that, we had everything we needed to recreate the photo since there was a green screen in the multimedia lab. Once we had two of our members model Frederic Williams and Tom Kilburn. We took multiple pictures trying to find the perfect lighting and angles to match the original photo.

After multiple attempts we finally got the angle and lighting we were looking for. Now we had to use photoshop to edit the photo to complete the reenactment. Our editor used another picture of the Manchester Baby to crop out the other two sides of the computer to add next to the replica we created. Our editor then used the tools in photoshop to blend in the cropped images to make the reenactment look more complete. Our editor also cropped the reenactment image because the original picture was from the waist up. The last thing our editor had to do was darken the background, fix the lighting a little bit, and make the image black and white to create the final product.



Final Result:




David Wei - Research, Report/Slides, Actor
david.wei@stonybrook.edu

Christian Munguia - Research, Report/Slides, Actor
christian.munguia@stonybrook.edu

Anthony Tellier - Research, Making the model, Photographer
anthony.tellier@stonybrook.edu

Ahmed Hassan Hafeez - Research, Editor, Photographer
ahmedhassan.hafeez@stonybrook.edu

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