

Tim Berners-Lee

Creator of the World Wide Web



Education

Born in London, England, in 1955, Tim Berners-Lee was educated at Emanuel School from the years 1969-73. After this time, he attended The Queens College at Oxford University where he received a first-class bachelor of arts degree in physics.

His potential for impact in the field of computer science and society as a whole was rooted in his upbringing and education. Both his parents, Mary Lee-Woods and Conway Berners-Lee, worked on the Ferranti Mark 1, the first commercially built computer. It was at Queen's College where Berners-Lee made his first computer with soldering iron, TTL gates, an M6800 processor and an old television. (W3.org) It was clear that Tim Berners Lee was destined to impact the Computer Science industry from an early age.

Work

After graduating from college Berners-Lee spent his first 4 years working as a programmer for both Plessey Telecommunications Ltd and D.G.Nash Ltd. After this time, Berners-Lee spent a year and a half working as an independent consultant including a six month tenure at the CERN institute in 1980. It was here where he began to construct the conceptual framework for the World Wide Web, dreaming of a networked hypertext system, (A.M. Turing). After a four year position at John Poole's Image Computer System's Ltd from 1981-84, Berners-Lee took up a fellowship position at the CERN Institute. It was during this fellowship at the CERN institute where he was granted the freedom and resources to create the World Wide Web.

In 1990, a year after the circulation of his document titled "Information Management: A Proposal" that Berners-Lee was given authorisation, by his manager at CERN, Mike Sendall, to begin work on the implementation of his internet networked hypertext system, (A.M.Turing). Starting work in October of 1990, Berners-Lee had, by December, created the first World Wide Web server; httpd (Hyper-Text Transfer Protocol Daemon) and the first client; WorldWideWeb. It was made available within CERN and acted as a browser and editor for Hypertext. In the summer of 1991 it was made available to the internet at large. (W3.org)

An interesting note on the process of Berners-Lee's work is the application to the software engineering concepts taught in this module CS3012. As he describes: "It was a step of generalising, going to a higher level of abstraction, thinking about all the documentation systems out there as being possibly part of a larger imaginary documentation system." (Achievement.org). The process by which Berners-Lee created his solution was to examine and evaluate how to utilise the existing available toolsets. By leveraging the existing toolset he was able to implement a solution that was fit for the problem statement and not overly complicated. The way in which Berners-Lee describes his solution to the implementation perfectly describes this aspect of software engineering, "I just had to take the hypertext idea and connect it to the Transmission Control Protocol and domain name system idea and – ta-da!" (Berners-Lee, Tim)

With the creation of the World Wide Web came the responsibility of the scaling and standardizing of it. Initially Berners-Lee worked with CERN in scaling and spreading the Web as Next workstations were very rare. Browser based systems were built for access from Macintosh systems, other people were beginning to implement faster and more robust browsers with ranging features from page graphics to browser histories. In 1994, CERN catalogued 829 Web servers in its Geographical Registry. (Turing)

Through his specifications for the Web upon creation, Berners-Lee had created standard attributes for web pages to allow for compatibility. The key attributes are outlined below:

- HTML(Hypertext Mark-up Language) – Specification for the way in which webpage content should be tagged.
- HTTP (Hypertext Transfer Protocol) – Specification for the interactions through which web browsers could request and receive web pages from Web servers
- URL (Uniform Resource Locator) – Specification around the way in which Web Pages could be referenced and located.

In his pursuit of the standardisation and scaling of the World Wide Web, Berners-Lee left his position at CERN in order to found the World Wide Web Consortium, W3C at Massachusetts Institute of Technology, MIT. From this position he has worked with stakeholders in order to create standards and recommendations to improve both the quality and uniformity of the Web. This pursuit was showcased through the decision by the W3C, that all standards should be based on royalty-free technology, allowing access to all.

Impact

The work of Berners-Lee in creating the World Wide Web has had a fundamental impact on society. The World Wide Web drove a massive expansion in access to the internet and internet infrastructure. (A.M Turing) The way in which we create and publish Web Pages has been fundamentally influenced by Berners-Lee. The creation of URL, HTTP and HTML has had a profound impact on the way we as a society interact with technology on the whole.

As Berners-Lee describes in an internal statement at CERN, “The W3 project provides a collaborative information system independent of hardware and software platform, and physical location.” (CERNJ) It is clear from this early stage that the project that Berners-Lee was working on has provided the foundation and structure that millions of people use around the world on a daily basis. Sites like Google, Facebook, YouTube and Wikipedia have profound impacts on society on a daily basis. The platform for such products stemmed from the foundation set by Berners-Lee and the World Wide Web. It is evidently clear that Berners-Lee is and will forever be considered a profoundly important software engineer who has changed the way in which society operates.

Commendation

For his work in creating the World Wide Web, Tim Berners-Lee has been commended by a number of bodies and institutions. This commendation shows the scope and the impact that his work has had in Society. Notable commendations are as follows:

- Order of the British Empire OBE, 1997
- Time: 100 Greatest Minds of the Century, 1999
- Queen Elizabeth Prize for Engineering, 2013
- ACM A.M. Turing Prize, 2016

Reference

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