Tim Berners Lee has played a crucial role in developing computer science and the world itself. He was born in 1955 in London, England. His parents were both computer scientists and worked together on the first commercially built computer, the Ferranti Mark 1. He did his A levels in Emmanuel College then went onto Oxford University, where he received a first-class degree in physics.

After graduating he worked as an engineer for two years at a telecommunications company, where he worked on the typesetting software on printers. After two years, he went to work for CERN as an independent contractor. He worked on projects which focused on developing the transferal of information across geographical locations. He proposed that they worked on a language for sharing text electronically called hypertext and soon developed a prototype called ‘Enquire’[1]. At the time CERN was home to a large European Internet node and so he developed a system in which he combined the internet with hypertext for the sharing and distribution of information globally. He named it the World Wide Web. Berner’s Lee also created the first web browser and editor, launching the first website ‘http://info.cern.ch’ in August 1991. The site explained his concept and demonstrated how other users could set up their website. This had a huge impact as this new development added a system for recognizing how web pages are located with URLs and HTML and HTTP which are how web pages are published and requested.

In 1994, Berner’s Lee founded the World Wide Web Consortium(W3C). W3C is an organization aimed towards developing tools, software, and guides to push the internet to its full potential. The W3C is also a free archive of information so there are no patents on any of the articles and tools which has positively impacted the internet and its growth. He is also a part of other organizations such as the World Wide Web Foundation and the Web Science Trust. These groups were founded in 2009 and promote the research and education of Web Science and software engineering[2].

Berner’s Lee is also a professor of engineering with a joint role in the department of computer science and electrical engineering at Massachusetts Institute of Technology(MIT) where co-leads the Decentralized Information Group(DIG)[3]. DIG is based in the MIT computer science and Artificial Intelligence Laboratory and focuses on investigating the decentralized techniques and technologies that affect social change. This is based on Berners-Lee’s goal of having a framework that ensures information can be shared, used, and manipulated following internet regulations.

In 2001, he became a fellow of the Royal Society which is an award given to those who have made a substantial contribution to the improvement of natural knowledge, including mathematics, engineering science, and medical science. Berners-Lee has also received various other prestigious awards such as the Japan Prize, the Prince of Asturias Foundation Prize, the Millennium Technology Prize, and also received a knighthood from Queen Elizabeth in 2007 for his services to the global development of the Internet. In 2017, he received the Turing Award, the Nobel Prize of computer science, for inventing the world wide web, the first browser, and the protocols and software that allow the web to scale.

One of Berners-Lee’s most influential creations is The Semantic Web[4]. Lee is a firm believer that the Web should not only link documents to each other but should also be made to be a gigantic, personal information storage, manipulation, and retrieval database. This is the basic idea behind his brainchild which he proposed shortly after he invented the World Wide Web. Furthermore, Berners-Lee also wants to make this information not only readily available for humans to read but also for software and computer programs to autonomously retrieve for their human counterparts on request. However, with Google and AltaVista creating their indexing and information retrieving algorithms, the idea of the Semantic web has altered to an extension of these models rather than remodeling of the entire Web.

Berners-Lee’s W3 consortium has built on this by implementing five technologies to make his idea work. He started using Universal Resource Identifiers to access the information then combined this with XML which has a built-in resource identifier to retrieve documents. The main piece of Berners-Lee’s vision was implementing Resource Description Framework(RDF) which uses URI’s in a specific way to navigate data. This way the URI could point to where the data of a document came from, the data itself, and then the subject of the data. This subject-predicate-object model was crucial for enabling Linked Data.

He also used a method known as ‘ontologies’ which is used for comparing two datasets that use different identifiers. In this method, if a dataset is setup differently, it will find out which identifiers are equal and then compare the data.

The final key to Berners-Lee’s vision of the Semantic Web was with agents. These are the actual software applications that collect content from all over the Web, sort through it, and then compare the data with other software agents. This software provided the backbone for the Semantic Web, providing a synergy that encompassed his idea of the Web. The potential of the Semantic Web to solve problems with inter-device communication, finding, and sorting information is brilliant. Contrary to this, its application slowly loses its applicability due to the changeability of knowledge, which means it wouldn't work for the entire Web.

Tim Berners-Lee is also a strong advocate for Internet rights such as net neutrality and closing the digital divide. He believes that to be offline today is to be “excluded from opportunities to learn and earn, to access valuable services, and to participate in democratic debate”[5]. As a result, his Web Foundation works on increasing the accessibility of the Internet and the Web and also looks to educate governments on the importance of giving everyone access to the Internet.

Furthermore, even after inventing the Web, Berners-Lee is still investigating and researching the future of the Web[6]. With the W3C foundation, he is looking to work with governments, companies, and citizens to build a new contract for the Web. This is a guide for the Internet to ensure online safety and empowerment for everyone. With over half of the world online, Berners-Lee and his Web foundation are looking to test and further improve already made algorithms to make data readily accessible alongside making new ones to gather and quantify new data.

Currently, Tim Berners-Lee works on reducing the power of big corporations such as Google and Facebook and the troves of personal data which they store. He began an open-sourced software project and also started a company called Inrupt, which develops server software for agencies and governments. The idea of the company is to charge licensing fees for its open sources software with enhanced security and developer tools to better store personal data online. This way markets will be decentralized and will be motivated by collaboration and personal empowerment.

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