Robert C. Gentleman

Daniel Di Mascio - 17333014

Robert Clifford Gentleman was born in 1959 in Canada. He is most well known for creating, along with the New Zealand-born Ross Ihaka, the statistical programming language R. He also founded the open software Bioconductor project and is currently the vice-president of genomics and biotechnology company 23 and Me. Before this project, I only knew of Gentleman in relation to R, but it would seem he has travelled much throughout his life, he is a widely skilled statistician and bioinformatician and he has worked on multiple large and successful projects in his years as a Doctor of Statistics.

Robert began his journey into the world of software engineering upon graduating from the University of British Columbia in Vancouver, Canada with a bachelor's degree in Mathematics. He evidently took a great interest in the field of statistics, as he went on to earn a PhD in statistics from the University of Washington in 1988. His thesis was titled "Exploratory Methods for Censored Data".

Following this, the now Dr Gentleman travelled to New Zealand to teach as a professor of statistics at the University of Aukland. It was here throughout the 1990s that he famously developed the programming language R with his colleague Ross Ihaka. Their work was heavily influenced by two existing programming languages: S and Scheme. Both professors believed both languages had strong points to them and sought to merge them into one. In fact, according to their journal article on the creation of R published in 1996, they began by writing an interpreter for a subset of Scheme and progressively mutated it to resemble S.

What resulted from this work was a language that was similar in appearance to S, but had the underlying implementation and semantics of Scheme. Robert and Ross named their new language R, after the similarity of their first names. From here, R has established itself, for a variety of reasons which are too long to dive into here, as one of the most widely-used statistical packages in the world.

Skipping forward to 2001, Gentleman founded the Bioconductor Project while working as a professor at Harvard University. Bioconductor is an

open-source, open development project which provides tools for bioinformatics and computational biology. According to the Bioconductor Project homepage, their mission is "to promote the statistical analysis and comprehension of current and emerging high-throughput biological assays". The project is, unsurprisingly, based on packages primarily written in the R language. Bioconductor is now run by a core team of statisticians and programmers based at Rosewell Park Cancer Institute who update Bioconductor semiannually, alongside R. They also provide short courses on statistical methods for analysing genomic data. Robert wrote a paper on Bioconductor in 2004 entitled, "Reproducible Research: A Bioinformatics Case Study".

After his departure from the project and leaving it in the safe hands of the team at Rosewell Park, Gentleman went on to spend a period with the Fred Hutchinson Cancer Research Center. While working here in 2008, he won the Benjamin Franklyn Award, presented to him by the Bioinformatics Organization to recognise his work on R, on the Bioconductor and his commitment to data sharing. He is also a Fellow of the International Society for Computational Biology.

In 2009, Gentleman joined Genentech, where he served as the senior director of bioinformatics and computational biology. Genentech is a pioneering and research-driven biotechnology company which researches both internally and collaborates with institutions such as the University of California and Hoffman-LaRoche, a Swiss multinational healthcare company. Genentech became a subsidiary of Roche around the time of Gentleman's employment. At this time, he also sat on the board of directors of Revolution Computing, where he greatly helped guide the company through a successful acquisition by Microsoft as well as rebranding to Revolution Analytics.

Today, Robert Gentleman is the vice-president of computational biology at personal genomics and biotechnology company 23 And Me. According to news reported by the company at Gentleman's appointment, the statistician and bioinformatician's primary focus at the company is on exploring how the human genetic and trait data in 23 And Me's database can be used to identify new therapies for disease.

In an interview with PR Newswire, the president of 23 And Me has said, "A scientist of his calibre coming to the company speaks volumes about the rigorous

scientific foundation 23andMe have built and the unique opportunity our data set provides to identify significant genetic discoveries.". The immense impact Gentleman's involvement could have at the company notwithstanding, such a compliment from the president of a multi-billion dollar company is a testament to the shining career Gentleman has had over his life and to the quality and capability of this remarkable creator. As Gentleman continues to work away at his current projects, we may wonder whether yet another software innovation of his will come to the forefront anytime soon.

References:

23 and Me appointment:
https://www.prnewswire.com/news-releases/bioinformatics-pioneer-robert-gentleman-phd-joins-23andme-leadership-team-300059876.html

Gentleman's education and research:
https://www.revolvy.com/page/Robert-Gentleman-%28statistician%29

Genentech:
https://www.revolvy.com/page/Genentech

Bioconductor:
https://bioconductor.org/about/index.html

R Journal article:
https://www.jstor.org/stable/1390807?seq=1#metadata_info_tab_contents

Dr Gentleman's thesis:
https://search.proquest.com/docview/303589316

Reproducible Research: A Bioinformatics Case Study
http://biostats.bepress.com/cgi/viewcontent.cgi?article=1002&context=bioconductor