The modern conception of data science as an independent discipline is sometimes attributed to William S. Jeff Wu used the term "data science" for the first time as an alternative name for statistics. Vasant Dhar writes that statistics emphasizes quantitative data and description. Statistician Nathan Yau, drawing on Ben Fry, also links data science to human–computer interaction: users should be able to intuitively control and explore data. In 1962, John Tukey described a field he called "data analysis", which resembles modern data science. Turing Award winner Jim Gray imagined data science as a "fourth paradigm" of science (empirical, theoretical, computational, and now data-driven) and asserted that "everything about science is changing because of the impact of information technology" and the data deluge. Data analysis focuses on extracting insights and drawing conclusions from structured data, while data science involves a more comprehensive approach that combines statistical analysis, computational methods, and machine learning to extract insights, build predictive models, and drive data-driven decision-making. In 1996, the International Federation of Classification Societies became the first conference to specifically feature data science as a topic. A data scientist is a professional who creates programming code and combines it with statistical knowledge to create insights from data. The field encompasses preparing data for analysis, formulating data science problems, analyzing data, developing data-driven solutions, and presenting findings to inform high-level decisions in a broad range of application domains. He describes data science as an applied field growing out of traditional statistics. Others argue that data science is distinct from statistics because it focuses on problems and techniques unique to digital data. They work at the intersection of mathematics, computer science, and domain expertise to solve complex problems and uncover hidden patterns in large datasets. F. Data science and data analysis are both important disciplines in the field of data management and analysis, but they differ in several key ways. Data science also integrates domain knowledge from the underlying application domain (e.g., natural sciences, information technology, and medicine). Vasant Dhar writes that statistics emphasizes quantitative data and description. In 1998, Hayashi Chikio argued for data science as a new, interdisciplinary concept, with three aspects: data design, collection, and analysis. However, data science is different from computer science and information science. This can involve tasks such as data cleaning, data visualization, and exploratory data analysis to gain insights into the data and develop hypotheses about relationships between variables. Andrew Gelman of Columbia University has described statistics as a non-essential part of data science. Data scientists are often responsible for collecting and cleaning data, selecting appropriate analytical techniques, and deploying models in real-world scenarios. Others argue that data science is distinct from statistics because it focuses on problems and techniques unique to digital data. In summary, data analysis and data science are distinct yet interconnected disciplines within the broader field of data management and analysis.