

Both fields play vital roles in leveraging the power of data to understand patterns, make informed decisions, and solve complex problems across various domains. Data science is a "concept to unify statistics, data analysis, informatics, and their related methods" to "understand and analyze actual phenomena" with data. 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. In 2012, technologists Thomas H. Davenport and D.J. Patil acknowledged the emergence of a new discipline focused on data of various origins and forms, combining established concepts and principles of statistics and data analysis with computing. Data science also integrates domain knowledge from the underlying application domain (e.g., natural sciences, information technology, and medicine). Data science is an interdisciplinary field focused on extracting knowledge from typically large data sets and applying the knowledge and insights from that data to solve problems in a wide range of application domains. While both fields involve working with data, data science is more of an interdisciplinary field that involves the application of statistical, computational, and machine learning methods to extract insights from data and make predictions, while data analysis is more focused on the examination and interpretation of data to identify patterns and trends. "Data science" became more widely used in the next few years: in 2002, the Committee on Data for Science and Technology launched the Data Science Journal. Big data is a related marketing term. The professional title of "data scientist" has been attributed to DJ Patil and Jeff Hammerbacher in 2008. F. Data scientists are often responsible for collecting and cleaning data, selecting appropriate analytical techniques, and deploying models in real-world scenarios. 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. In 2003, Columbia University launched The Journal of Data Science. In addition to statistical analysis, data science often involves tasks such as data preprocessing, feature engineering, and model selection. While data analysis focuses on extracting insights from existing data, data science goes beyond that by incorporating the development and implementation of predictive models to make informed decisions. Jeff Wu used the term "data science" for the first time as an alternative name for statistics. In 2012, technologists Thomas H. Davenport and D.J. Patil. For example, a data analyst might analyze sales data to identify trends in customer behavior and make recommendations for marketing strategies. Data analysis typically involves working with smaller, structured datasets to answer specific questions or solve specific problems.