

23rd March 2012

10 most famous statisticians

Did you ever wonder who contributed the ideas or formulas from the subject Statistics? Well this might be the answers that you are looking for. Check it out.

Great Statisticians

R. A. Fisher

Sir Ronald Aylmer Fisher, FRS (1890 - 1962) was an English statistician, evolutionary biologist, and geneticist. Richard Dawkins described him as "The greatest of Darwin's successors", and the historian of statistics Anders Hald said "Fisher was a genius who almost single-handedly created the foundations for modern statistical science". His contributions to experimental design, analysis of variance, and likelihood based methods have led some to call him "The Father of Statistics". Some think that it was first Fisher who referred to the growth rate r (used in equations such as the [logistic function](http://en.wikipedia.org/wiki/Logistic_function) [\[http://en.wikipedia.org/wiki/Logistic_function\]](http://en.wikipedia.org/wiki/Logistic_function)) as the Malthusian parameter, as a criticism of the writings of [Thomas Robert Malthus](http://en.wikipedia.org/wiki/Thomas_Robert_Malthus) [\[http://en.wikipedia.org/wiki/Thomas_Robert_Malthus\]](http://en.wikipedia.org/wiki/Thomas_Robert_Malthus), who Fisher referred to "...a relic of creationist philosophy..." in observing the fecundity of nature and deducing (as Darwin did) that this therefore drove natural selection. However, it is much more likely that Fisher called r the Malthusian parameter because, in 1798, Malthus published *An Essay on the Principal of Population*, which contained a mathematical model of population growth that became commonly known as the Malthusian Growth Model and which contained said parameter in the following formula: $P(t) = P_0 e^{rt}$ where P_0 = initial population, r = growth rate, t = time.



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[OnOmOFSpjoQ/T2y1cgcxJMI/AAAAAAAAAY/VfGBjHsWfLM/s1600/H4060169-Sir_Ronald_Fisher-SPL.jpeg](http://4.bp.blogspot.com/-OnOmOFSpjoQ/T2y1cgcxJMI/AAAAAAAAAY/VfGBjHsWfLM/s1600/H4060169-Sir_Ronald_Fisher-SPL.jpeg)]

Karl Pearson

Karl Pearson (1857 - 1936) was a major contributor to the early development of statistics, and founder of the world's first university statistics department at University College London in 1911. He was also an ardent and controversial proponent of eugenics. His most famous contribution is the Pearson's chi-square test. He was an influential [English](http://en.wikipedia.org/wiki/English) [mathematician](http://en.wikipedia.org/wiki/Mathematician) who has been credited for establishing the discipline of [mathematical statistics](http://en.wikipedia.org/wiki/Mathematical_statistics) .

In 1911 he founded the world's first university statistics department at [University College London](http://en.wikipedia.org/wiki/University_College_London) . He was a proponent of [eugenics](http://en.wikipedia.org/wiki/Eugenics) , and a protégé and [biographer](http://en.wikipedia.org/wiki/Biographer) of [Sir Francis Galton](http://en.wikipedia.org/wiki/Francis_Galton) .

A [sesquicentenary](http://en.wikipedia.org/wiki/Sesquicentenary) conference was held in London on 23 March 2007, to celebrate the 150th anniversary of his birth.



[http://4.bp.blogspot.com/-YsLV-_8SNEA/T2y1wGpHA9I/AAAAAAAAAAg/I-kxnkSrM1A/s1600/pearson.jpeg]

Gertrude Cox

Gertrude Mary Cox (1900 - 1978) was an influential American statistician and founder of the department of Experimental Statistics at North Carolina State University. She was later appointed director of both the Institute of Statistics of the Consolidated University of North Carolina and the Statistics Research Division of North Carolina State University. Her most important and influential research dealt with experimental design; she wrote an important book on the subject with W. G. Cochran. In 1949 Cox became the first female elected into the International Statistical Institute and in 1956 she was president of the American Statistical Association. From 1931 to 1933 Cox undertook graduate studies in statistics at the [University of California at Berkeley](http://en.wikipedia.org/wiki/University_of_California_at_Berkeley) [http://en.wikipedia.org/wiki/University_of_California_at_Berkeley], then returned to Iowa State College as assistant in the Statistical Laboratory. Here she worked on the [design of experiments](http://en.wikipedia.org/wiki/Design_of_experiments) [http://en.wikipedia.org/wiki/Design_of_experiments]. In 1939 she was appointed assistant professor of statistics at Iowa State.

In 1940 Cox was appointed professor of statistics at [North Carolina State University](http://en.wikipedia.org/wiki/North_Carolina_State_University) [http://en.wikipedia.org/wiki/North_Carolina_State_University] at Raleigh. There she headed the new department of Experimental Statistics.

In 1945 she became director of the Institute of Statistics of the [Consolidated University of North Carolina](http://en.wikipedia.org/wiki/University_of_North_Carolina) [http://en.wikipedia.org/wiki/University_of_North_Carolina], and the Statistics Research Division of the North Carolina State College which was run by [William Gemmell Cochran](http://en.wikipedia.org/wiki/William_Gemmell_Cochran) [http://en.wikipedia.org/wiki/William_Gemmell_Cochran]. In the same year of 1945 Cox became the editor of *Biometrics Bulletin* and of *Biometrics* [http://en.wikipedia.org/wiki/Biometrics_(journal)] and she held this editorship for 10 years. In 1947 she was a founder member of the [International Biometric Society](http://en.wikipedia.org/wiki/International_Biometric_Society) [http://en.wikipedia.org/wiki/International_Biometric_Society].

In 1950 she published a joint work with Cochran, *Experimental Design*, which quickly became a classic text.

In 1960 she took up her final post as Director of Statistics at the [Research Triangle Institute](http://en.wikipedia.org/wiki/Research_Triangle_Institute) [http://en.wikipedia.org/wiki/Research_Triangle_Institute] in Durham, North Carolina. She held this

post until she retired in 1964.

Cox received many honours. In 1949 she became the first woman elected into the [International Statistical Institute](http://en.wikipedia.org/wiki/International_Statistical_Institute) [http://en.wikipedia.org/wiki/International_Statistical_Institute] . In 1956 she was elected President of the [American Statistical Association](http://en.wikipedia.org/wiki/American_Statistical_Association) [http://en.wikipedia.org/wiki/American_Statistical_Association] while in 1975 she was elected to the [National Academy of Sciences](http://en.wikipedia.org/wiki/United_States_National_Academy_of_Sciences) [http://en.wikipedia.org/wiki/United_States_National_Academy_of_Sciences] .



[\[http://3.bp.blogspot.com/-9oWep1iXKfk/T2y2LReU64I/AAAAAAAAAAo/tLpLuovFYEW/s1600/gertrudecox.jpeg\]](http://3.bp.blogspot.com/-9oWep1iXKfk/T2y2LReU64I/AAAAAAAAAAo/tLpLuovFYEW/s1600/gertrudecox.jpeg)

Frank Yates

Frank Yates (1902 - 1994) was one of the pioneers of 20th century statistics. He worked on the design of experiments, including contributions to the theory of analysis of variance and originating Yates' algorithm and the balanced incomplete block design. He became an enthusiast of electronic computers, in 1954 obtaining an Elliott 401 for Rothamsted and contributing to the initial development of statistical computing. In 1931 Yates was appointed assistant statistician at [Rothamsted Experimental Station](http://en.wikipedia.org/wiki/Rothamsted_Experimental_Station) [http://en.wikipedia.org/wiki/Rothamsted_Experimental_Station] by [R.A. Fisher](http://en.wikipedia.org/wiki/Ronald_Fisher) [http://en.wikipedia.org/wiki/Ronald_Fisher] . In 1933 he became head of statistics when Fisher went to [University College London](http://en.wikipedia.org/wiki/University_College_London) [http://en.wikipedia.org/wiki/University_College_London] . At Rothamsted he worked on the design of experiments [http://en.wikipedia.org/wiki/Design_of_experiments] , including contributions to the theory of analysis of variance [http://en.wikipedia.org/wiki/Analysis_of_variance] and originating Yates's algorithm and the balanced incomplete block design [http://en.wikipedia.org/wiki/Block_design] .

During [World War II](http://en.wikipedia.org/wiki/World_War_II) [http://en.wikipedia.org/wiki/World_War_II] he worked on what would later be called operations research [http://en.wikipedia.org/wiki/Operations_research] .

After the war he worked on [sample survey](http://en.wikipedia.org/wiki/Sample_survey) [http://en.wikipedia.org/wiki/Sample_survey] design and analysis. He became an enthusiast of electronic computers [http://en.wikipedia.org/wiki/Computer] , in 1954 obtaining an Elliott 401 [http://en.wikipedia.org/wiki/Elliott_Brothers_(computer_company)] for Rothamsted and contributing to the initial development of [statistical computing](http://en.wikipedia.org/wiki/Statistical_computing) [http://en.wikipedia.org/wiki/Statistical_computing] . In 1960 he was awarded the [Guy Medal](http://en.wikipedia.org/wiki/Guy_Medal) [http://en.wikipedia.org/wiki/Guy_Medal] in Gold of the [Royal Statistical Society](http://en.wikipedia.org/wiki/Royal_Statistical_Society) [http://en.wikipedia.org/wiki/Royal_Statistical_Society] , and in 1966 he was awarded the [Royal Medal](http://en.wikipedia.org/wiki/Royal_Medal) [http://en.wikipedia.org/wiki/Royal_Medal] of the [Royal Society](http://en.wikipedia.org/wiki/Royal_Society) [http://en.wikipedia.org/wiki/Royal_Society] . He retired from Rothamsted to become a Senior Research Fellow at [Imperial College London](http://en.wikipedia.org/wiki/Imperial_College_London) [http://en.wikipedia.org/wiki/Imperial_College_London] . He died in 1994, aged 92, in [Harpenden](http://en.wikipedia.org/wiki/Harpenden) [http://en.wikipedia.org/wiki/Harpenden] .

Publications include:

- *The design and analysis of factorial experiments*, Technical Communication no. 35 of the Commonwealth Bureau of Soils (1937) (alternatively attributed to the Imperial Bureau of Soil Science).
- *Statistical tables for biological, agricultural and medical research* (1938, coauthor [R.A. Fisher](http://en.wikipedia.org/wiki/Ronald_Fisher) [\[http://en.wikipedia.org/wiki/Ronald_Fisher\]](http://en.wikipedia.org/wiki/Ronald_Fisher)) sixth edition [\[http://digital.library.adelaide.edu.au/coll/special/fisher/stat_tab.pdf\]](http://digital.library.adelaide.edu.au/coll/special/fisher/stat_tab.pdf)
- *Sampling methods for censuses and surveys* (1949)
- Computer programs GENFAC, RGSP, Fitquan.
-



[\[http://3.bp.blogspot.com/-rlpRuyvOHnc/T2y2cpf5isl/AAAAAAAAAw/JPt39YXjzo/s1600/200px-Frank_Yates.jpeg\]](http://3.bp.blogspot.com/-rlpRuyvOHnc/T2y2cpf5isl/AAAAAAAAAw/JPt39YXjzo/s1600/200px-Frank_Yates.jpeg)

Kirstine Smith

Kirstine Smith (1878 – 1939) was born in Denmark. She was admitted as a candidate for a doctorate in statistics in 1916 at the University of London and wrote a thesis that was a precursor to modern optimal design theory, published in 1918 *Biometrika*. Karl Pearson considered her to be one of his most brilliant mathematical statisticians. Her work with Pearson on minimum chi-square spurred a controversial dialog between Pearson and Fisher, and led to Fisher's introduction of sufficient statistics. She returned to teaching in Denmark and ended her career there.

John Tukey

John Wilder Tukey (1915 – 2000) was a professor of Statistics at Princeton University. A mathematician by training, his statistical interests were many and varied. He contributed significantly to what is today known as the jackknife procedure. He introduced the box plot in his 1977 book, *Exploratory Data Analysis*. He also contributed to statistical practice and articulated the important distinction between exploratory data analysis and confirmatory data analysis, believing that much statistical methodology placed too great an emphasis on the latter. He is an American [statistician](http://en.wikipedia.org/wiki/Statistician) [\[http://en.wikipedia.org/wiki/Statistician\]](http://en.wikipedia.org/wiki/Statistician) best known for development of the [FFT](http://en.wikipedia.org/wiki/FFT)

algorithm [\[http://en.wikipedia.org/wiki/Cooley%E2%80%93Tukey_FFT_algorithm\]](http://en.wikipedia.org/wiki/Cooley%E2%80%93Tukey_FFT_algorithm) and box plot [\[http://en.wikipedia.org/wiki/Box_plot\]](http://en.wikipedia.org/wiki/Box_plot) . His statistical [\[http://en.wikipedia.org/wiki/Statistics\]](http://en.wikipedia.org/wiki/Statistics) interests were many and varied. He is particularly remembered for his development with James Cooley [\[http://en.wikipedia.org/wiki/James_Cooley\]](http://en.wikipedia.org/wiki/James_Cooley) of the Cooley–Tukey FFT algorithm [\[http://en.wikipedia.org/wiki/Cooley%E2%80%93Tukey_FFT_algorithm\]](http://en.wikipedia.org/wiki/Cooley%E2%80%93Tukey_FFT_algorithm) . In 1970, he contributed significantly to what is today known as the jackknife estimation [\[http://en.wikipedia.org/wiki/Resampling_\(statistics\)#Jackknife\]](http://en.wikipedia.org/wiki/Resampling_(statistics)#Jackknife) –also termed Quenouille [\[http://en.wikipedia.org/w/index.php?title=Quenouille&action=edit&redlink=1\]](http://en.wikipedia.org/w/index.php?title=Quenouille&action=edit&redlink=1) –Tukey jackknife. He introduced the box plot [\[http://en.wikipedia.org/wiki/Box_plot\]](http://en.wikipedia.org/wiki/Box_plot) in his 1977 book, "Exploratory Data Analysis [\[http://en.wikipedia.org/wiki/Exploratory_Data_Analysis\]](http://en.wikipedia.org/wiki/Exploratory_Data_Analysis) " .

Tukey's range test [\[http://en.wikipedia.org/wiki/Tukey%27s_range_test\]](http://en.wikipedia.org/wiki/Tukey%27s_range_test) , the Tukey lambda distribution [\[http://en.wikipedia.org/wiki/Tukey_lambda_distribution\]](http://en.wikipedia.org/wiki/Tukey_lambda_distribution) , Tukey's test of additivity [\[http://en.wikipedia.org/wiki/Tukey%27s_test_of_additivity\]](http://en.wikipedia.org/wiki/Tukey%27s_test_of_additivity) and Tukey's lemma [\[http://en.wikipedia.org/wiki/Tukey%27s_lemma\]](http://en.wikipedia.org/wiki/Tukey%27s_lemma) all bear his name. He is also the creator of several little-known methods such as the trimean [\[http://en.wikipedia.org/wiki/Trimean\]](http://en.wikipedia.org/wiki/Trimean) and median-median line [\[http://en.wikipedia.org/w/index.php?title=Median-median_line&action=edit&redlink=1\]](http://en.wikipedia.org/w/index.php?title=Median-median_line&action=edit&redlink=1) , an easier alternative to linear regression [\[http://en.wikipedia.org/wiki/Linear_regression\]](http://en.wikipedia.org/wiki/Linear_regression) .

In 1974, he developed, with Jerome H. Friedman, the concept of the projection pursuit [\[http://en.wikipedia.org/wiki/Projection_pursuit\]](http://en.wikipedia.org/wiki/Projection_pursuit) .

Statistical practice

He also contributed to statistical practice and articulated the important distinction between exploratory data analysis [\[http://en.wikipedia.org/wiki/Exploratory_data_analysis\]](http://en.wikipedia.org/wiki/Exploratory_data_analysis) and confirmatory data analysis [\[http://en.wikipedia.org/wiki/Confirmatory_data_analysis\]](http://en.wikipedia.org/wiki/Confirmatory_data_analysis) , believing that much statistical methodology placed too great an emphasis on the latter.

Though he believed in the utility of separating the two types of analysis, he pointed out that sometimes, especially in natural science [\[http://en.wikipedia.org/wiki/Natural_science\]](http://en.wikipedia.org/wiki/Natural_science) , this was problematic and termed such situations uncomfortable science [\[http://en.wikipedia.org/wiki/Uncomfortable_science\]](http://en.wikipedia.org/wiki/Uncomfortable_science) .



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George E. P. Box

George Edward Pelham Box, born on October 18, 1919, was a pioneer in the areas of quality control, time series analysis, and design of experiments. Still on the engineering faculty of University of Wisconsin, he is well-known for the quote "...all models are wrong, but some are useful". His books *Statistics for Experimenters* and *Time Series Analysis: Forecasting and Control* are classic texts.

Professional recognition: offices and awards

Box served as President of the [American Statistical Association](#)

[\[http://en.wikipedia.org/wiki/American_Statistical_Association\]](http://en.wikipedia.org/wiki/American_Statistical_Association) in 1978 and of the [Institute of Mathematical Statistics](#)

[\[http://en.wikipedia.org/wiki/Institute_of_Mathematical_Statistics\]](http://en.wikipedia.org/wiki/Institute_of_Mathematical_Statistics) in 1979. He received the [Shewhart Medal](#)

[\[http://en.wikipedia.org/wiki/Shewhart_Medal\]](http://en.wikipedia.org/wiki/Shewhart_Medal) from the [American Society for Quality Control](#)

[\[http://en.wikipedia.org/wiki/American_Society_for_Quality_Control\]](http://en.wikipedia.org/wiki/American_Society_for_Quality_Control) in 1968, the [Wilks Memorial Award](#)

[\[http://en.wikipedia.org/wiki/Wilks_Memorial_Award\]](http://en.wikipedia.org/wiki/Wilks_Memorial_Award) from the [American Statistical Association](#)

[\[http://en.wikipedia.org/wiki/American_Statistical_Association\]](http://en.wikipedia.org/wiki/American_Statistical_Association) in 1972, the [R. A. Fisher Lectureship](#)

[\[http://en.wikipedia.org/wiki/R._A._Fisher_Lectureship\]](http://en.wikipedia.org/wiki/R._A._Fisher_Lectureship) in 1974, and the [Guy Medal](#) [\[http://en.wikipedia.org/wiki/Guy_Medal\]](http://en.wikipedia.org/wiki/Guy_Medal) in Gold from the [Royal Statistical Society](#) [\[http://en.wikipedia.org/wiki/Royal_Statistical_Society\]](http://en.wikipedia.org/wiki/Royal_Statistical_Society) in 1993. Box was elected

a member of the [American Academy of Arts and Sciences](#)

[\[http://en.wikipedia.org/wiki/American_Academy_of_Arts_and_Sciences\]](http://en.wikipedia.org/wiki/American_Academy_of_Arts_and_Sciences) in 1974 and a Fellow of the [Royal Society](#)

[\[http://en.wikipedia.org/wiki/Royal_Society\]](http://en.wikipedia.org/wiki/Royal_Society) in 1979.



[\[http://3.bp.blogspot.com/-8WmP_3G5YO0/T2y3lw-xiQI/AAAAAAAAABA/2QfH-ZgGrdA/s1600/1990_George_Box.jpeg\]](http://3.bp.blogspot.com/-8WmP_3G5YO0/T2y3lw-xiQI/AAAAAAAAABA/2QfH-ZgGrdA/s1600/1990_George_Box.jpeg)

David R. Cox

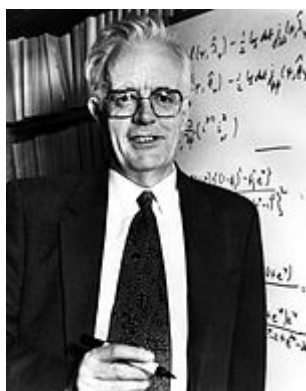
Sir David R. Cox, born in 1924, is a British statistician who has made pioneering and important contributions to numerous areas of statistics and applied probability. Perhaps

the best known of his many developments is the proportional hazards model, which is widely used in the analysis of survival data. He is now an Honorary Fellow of Nuffield College and a member of the Department of Statistics at the University of Oxford.

Career

He was employed from 1944 to 1946 at the [Royal Aircraft Establishment](http://en.wikipedia.org/wiki/Royal_Aircraft_Establishment) [http://en.wikipedia.org/wiki/Royal_Aircraft_Establishment], from 1946 to 1950 at the [Wool Industries Research Association](http://en.wikipedia.org/wiki/Wool_Industries_Research_Association) [http://en.wikipedia.org/wiki/Wool_Industries_Research_Association] in Leeds, and from 1950 to 1956 worked at the Statistical Laboratory at the University of Cambridge. From 1956 to 1966 he was Reader and then Professor of Statistics at [Birkbeck College, London](http://en.wikipedia.org/wiki/Birkbeck_University_of_London) [http://en.wikipedia.org/wiki/Birkbeck_University_of_London]. In 1966, he took up the Chair position in Statistics at [Imperial College London](http://en.wikipedia.org/wiki/Imperial_College_London) [http://en.wikipedia.org/wiki/Imperial_College_London] where he later became head of the mathematics department. In 1988 he became Warden of [Nuffield College](http://en.wikipedia.org/wiki/Nuffield_College,_Oxford) [http://en.wikipedia.org/wiki/Nuffield_College,_Oxford] and a member of the Department of Statistics at Oxford University. He formally retired from these positions in 1994.

Cox has received numerous honorary doctorates. He has been awarded the [Guy Medals](http://en.wikipedia.org/wiki/Guy_Medal) [http://en.wikipedia.org/wiki/Guy_Medal] in Silver (1961) and Gold (1973) of the [Royal Statistical Society](http://en.wikipedia.org/wiki/Royal_Statistical_Society) [http://en.wikipedia.org/wiki/Royal_Statistical_Society]. He was elected Fellow of the [Royal Society of London](http://en.wikipedia.org/wiki/Royal_Society_of_London) [http://en.wikipedia.org/wiki/Royal_Society_of_London] in 1973, was knighted by [Queen Elizabeth II](http://en.wikipedia.org/wiki/Elizabeth_II_of_the_United_Kingdom) [http://en.wikipedia.org/wiki/Elizabeth_II_of_the_United_Kingdom] in 1985 and became an Honorary Fellow of the [British Academy](http://en.wikipedia.org/wiki/British_Academy) [http://en.wikipedia.org/wiki/British_Academy] in 2000. He is a Foreign Associate of the [US National Academy of Sciences](http://en.wikipedia.org/wiki/United_States_National_Academy_of_Sciences) [http://en.wikipedia.org/wiki/United_States_National_Academy_of_Sciences] and a foreign member of the [Royal Danish Academy of Sciences and Letters](http://en.wikipedia.org/wiki/Royal_Danish_Academy_of_Sciences_and_Letters) [http://en.wikipedia.org/wiki/Royal_Danish_Academy_of_Sciences_and_Letters]. In 1990 he won the Kettering Prize and Gold Medal for Cancer Research for "the development of the Proportional Hazard Regression Model." In 2010 he was awarded the [Copley Medal](http://en.wikipedia.org/wiki/Copley_Medal) [http://en.wikipedia.org/wiki/Copley_Medal] of the Royal Society "for his seminal contributions to the theory and applications of statistics." It is given for "outstanding achievements in research in any branch of science, and alternates between the physical sciences and the biological sciences". Awarded every year, the medal is the oldest Royal Society medal still being awarded, having first been given in 1731.



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emLD8LWs3GE/T2y4Dh0m4bl/AAAAAAAAABI/NJ42d0S0Aao/s1600/150px-Nci-vol-8182-300_david_cox.jpeg]

Jerome H. Friedman

Jerome H. Friedman is one of the world's leading researchers in statistical data mining. He has been a Professor of Statistics at Stanford University for nearly 20 years and has published on a wide range of data mining topics including nearest neighbor classification, logistic regression, and high-dimensional data analysis, and machine learning. **Gradient boosting** is a machine learning [\[http://en.wikipedia.org/wiki/Machine_learning\]](http://en.wikipedia.org/wiki/Machine_learning) technique for regression [\[http://en.wikipedia.org/wiki/Regression_\(machine_learning\)\]](http://en.wikipedia.org/wiki/Regression_(machine_learning)) problems, which produces a prediction model in the form of an ensemble [\[http://en.wikipedia.org/wiki/Ensemble_learning\]](http://en.wikipedia.org/wiki/Ensemble_learning) of weak prediction models, typically decision trees [\[http://en.wikipedia.org/wiki/Decision_tree\]](http://en.wikipedia.org/wiki/Decision_tree). It builds the model in a stage-wise fashion like other boosting [\[http://en.wikipedia.org/wiki/Boosting\]](http://en.wikipedia.org/wiki/Boosting) methods do, and it generalizes them by allowing optimization of an arbitrary differentiable [\[http://en.wikipedia.org/wiki/Differentiable_function\]](http://en.wikipedia.org/wiki/Differentiable_function) loss function [\[http://en.wikipedia.org/wiki/Loss_function\]](http://en.wikipedia.org/wiki/Loss_function). Gradient boosting method can be also used for classification [\[http://en.wikipedia.org/wiki/Classification_\(machine_learning\)\]](http://en.wikipedia.org/wiki/Classification_(machine_learning)) problems by reducing them to regression with a suitable loss function.

The method was invented by Jerome H. Friedman [\[http://en.wikipedia.org/w/index.php?title=Jerome_H._Friedman&action=edit&redlink=1\]](http://en.wikipedia.org/w/index.php?title=Jerome_H._Friedman&action=edit&redlink=1) in 1999 and was published in a series of two papers, the first of which^[1] [\[http://en.wikipedia.org/wiki/Gradient_boosting#cite_note-Friedman1999a-0\]](http://en.wikipedia.org/wiki/Gradient_boosting#cite_note-Friedman1999a-0) introduced the method, and the second one^[2] [\[http://en.wikipedia.org/wiki/Gradient_boosting#cite_note-Friedman1999b-1\]](http://en.wikipedia.org/wiki/Gradient_boosting#cite_note-Friedman1999b-1) described an important tweak to the algorithm, which improves its accuracy and performance.

Gradient boosting

In many supervised learning [\[http://en.wikipedia.org/wiki/Supervised_learning\]](http://en.wikipedia.org/wiki/Supervised_learning) problems one has an output variable y and a vector of input variables x connected together via a joint probability distribution $P(x, y)$. Using a training set

$(x_1, y_1), \dots, (x_n, y_n)$ of known values of x and corresponding values of y , the goal is to find an

approximation $\hat{F}(x)$ to a function $F^*(x)$ that minimizes the expected value of some specified loss function

[\[http://en.wikipedia.org/wiki/Loss_function\]](http://en.wikipedia.org/wiki/Loss_function) $L(y, F(x))$:

$$F^* = \arg \min_F E_{x,y} L(y, F(x)).$$

Gradient boosting method assumes a real-valued y and seeks an approximation $\hat{F}(x)$ in the form of a weighted sum of functions $h_i(x)$ from some class \mathcal{H} , called base (or weak) learners:

$$F(x) = \sum_{i=1}^M \gamma_i h_i(x) + \text{const.}$$

In accordance with the empirical risk minimization [\[http://en.wikipedia.org/wiki/Empirical_risk_minimization\]](http://en.wikipedia.org/wiki/Empirical_risk_minimization) principle, the method tries to find an approximation $\hat{F}(x)$ that minimizes the average value of the loss function on the training set. It does so by starting with a model, consisting of a constant function $F_0(x)$, and incrementally expanding it in a greedy [\[http://en.wikipedia.org/wiki/Greedy_algorithm\]](http://en.wikipedia.org/wiki/Greedy_algorithm) fashion:

$$F_0(x) = \arg \min_{\gamma} \sum_{i=1}^n L(y_i, \gamma),$$

$$F_m(x) = F_{m-1}(x) + \arg \min_{f \in \mathcal{H}} \sum_{i=1}^n L(y_i, F_{m-1}(x_i) + f(x_i)),$$

where f is restricted to be a function from the class \mathcal{H} of base learner functions.

However, the problem of choosing at each step the best f for an arbitrary loss function L is a hard optimization problem in general, and so we'll "cheat" by solving a much easier problem instead.

The idea is to apply a [steepest descent](http://en.wikipedia.org/wiki/Steepest_descent) step to this minimization problem. If we only cared about predictions at the points of the training set, and f were unrestricted, we'd update the model per the following equation, where we view $L(y, f)$ not as a functional of f , but as a function of a vector of values

$$f(x_1), \dots, f(x_n) :$$

$$F_m(x) = F_{m-1}(x) - \gamma_m \sum_{i=1}^n \nabla_f L(y_i, F_{m-1}(x_i)),$$

$$\gamma_m = \arg \min_{\gamma} \sum_{i=1}^n L \left(y_i, F_{m-1}(x_i) - \gamma \frac{\partial L(y_i, F_{m-1}(x_i))}{\partial f(x_i)} \right).$$

But as f must come from a restricted class of functions (that's what allows us to generalize), we'll just choose the one that most closely approximates the gradient of L . Having chosen f , the multiplier γ is then selected using [line search](http://en.wikipedia.org/wiki/Line_search) just as shown in the second equation above.

In pseudocode, the generic gradient boosting method is:

Input: training set $\{(x_i, y_i)\}_{i=1}^n$, a differentiable loss function $L(y, F(x))$, number of iterations M .

Algorithm:

1. Initialize model with a constant value:

$$F_0(x) = \underset{\gamma}{\operatorname{arg\,min}} \sum_{i=1}^n L(y_i, \gamma).$$

2. For $m = 1$ to M :

1. Compute so-called *pseudo-residuals*:

$$r_{im} = - \left[\frac{\partial L(y_i, F(x_i))}{\partial F(x_i)} \right]_{F(x)=F_{m-1}(x)} \quad \text{for } i = 1, \dots, n.$$

2. Fit a base learner $h_m(x)$ to pseudo-residuals, i.e. train it using the training set

$$\{(x_i, r_{im})\}_{i=1}^n.$$

3. Compute multiplier γ_m by solving the following [one-dimensional optimization](http://en.wikipedia.org/wiki/Line_search) [\[http://en.wikipedia.org/wiki/Line_search\]](http://en.wikipedia.org/wiki/Line_search)

problem:

$$\gamma_m = \arg \min_{\gamma} \sum_{i=1}^n L(y_i, F_{m-1}(x_i) + \gamma h_m(x_i)).$$

4. Update the model:

$$F_m(x) = F_{m-1}(x) + \gamma_m h_m(x).$$

3. Output $F_M(x)$.

Bradley Efron

Professor Efron is a member of the National Academy of Sciences, president of the American Statistical Association, recipient of the MacArthur Prize, and winner of the Wilks Medal of the American Statistical Association. Professor Efron is renowned internationally for his pioneering work in computationally intensive statistical methods, particularly the bootstrap method and the biased coin design. He is still a very active researcher, having worked more recently in statistical genetics.

Awards

He has won many honors, including a [MacArthur Prize Fellowship](http://en.wikipedia.org/wiki/MacArthur_Prize_Fellowship) [\[http://en.wikipedia.org/wiki/MacArthur_Prize_Fellowship\]](http://en.wikipedia.org/wiki/MacArthur_Prize_Fellowship), membership in the [National Academy of Sciences](http://en.wikipedia.org/wiki/United_States_National_Academy_of_Sciences) [\[http://en.wikipedia.org/wiki/United_States_National_Academy_of_Sciences\]](http://en.wikipedia.org/wiki/United_States_National_Academy_of_Sciences) and the [American Academy of Arts and Sciences](http://en.wikipedia.org/wiki/American_Academy_of_Arts_and_Sciences) [\[http://en.wikipedia.org/wiki/American_Academy_of_Arts_and_Sciences\]](http://en.wikipedia.org/wiki/American_Academy_of_Arts_and_Sciences), fellowship in the [Institute of Mathematical Statistics](http://en.wikipedia.org/wiki/Institute_of_Mathematical_Statistics) [\[http://en.wikipedia.org/wiki/Institute_of_Mathematical_Statistics\]](http://en.wikipedia.org/wiki/Institute_of_Mathematical_Statistics) (IMS) and the [American Statistical Association](http://en.wikipedia.org/wiki/American_Statistical_Association) [\[http://en.wikipedia.org/wiki/American_Statistical_Association\]](http://en.wikipedia.org/wiki/American_Statistical_Association) (ASA), the Wilks Medal, the Parzen Prize, and the Rao Prize, Fisher, Rietz and Wald lecturer.

In 2005, he was awarded the [National Medal of Science](http://en.wikipedia.org/wiki/National_Medal_of_Science) [\[http://en.wikipedia.org/wiki/National_Medal_of_Science\]](http://en.wikipedia.org/wiki/National_Medal_of_Science), the highest scientific honor by the United States, for his exceptional work in the field of Statistics (especially for his inventing of the bootstrapping methodology). He was presented with the award on May 29, 2007.

F. N. David

Florence Nightingale David (1909 – 1993), a great statistician and a fighter for increasing women's roles in the sciences, began her career as a research assistant in Karl Pearson's

laboratory. During World War II, she became an experimental officer and senior statistician for the Research and Experiments Department, and was scientific advisor on mines for the military. David felt that the war gave women more opportunities and that conditions for them are now better because of it. After serving as a lecturer and professor at University College for many years, in 1970 she was offered the chair of statistics at the University of California at Riverside. David read mathematics at [Bedford College for Women](http://en.wikipedia.org/wiki/Bedford_College_for_Women) in London. After graduation, she worked for the eminent statistician [Karl Pearson](http://en.wikipedia.org/wiki/Karl_Pearson) at [University College, London](http://en.wikipedia.org/wiki/University_College,_London) as his research student. She calculated the distribution of correlation coefficients [\[http://en.wikipedia.org/wiki/Pearson_product-moment_correlation_coefficient\]](http://en.wikipedia.org/wiki/Pearson_product-moment_correlation_coefficient), producing in 1938 her first book, *Tables of the correlation coefficient*.



[\[http://2.bp.blogspot.com/-JGcMebvFEIs/T2y5CIDzQsI/AAAAAAAAABQ/XxWopZdYCuk/s1600/fndavid.jpeg\]](http://2.bp.blogspot.com/-JGcMebvFEIs/T2y5CIDzQsI/AAAAAAAAABQ/XxWopZdYCuk/s1600/fndavid.jpeg)

REFERENCES:

<http://www.wikipedia.org>

<http://statistics.gmu.edu/pages/famous.html>

Mr. Cris Paner Curriculum Vitae

CRISENCIO M. PANER

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EDUCATION

- **Ph.D. in Biological Science (candidate)**

University of Santo Tomas, Graduate School

- **M.S. Microbiology**

University of Santo Tomas

Thesis: "Chemical Control of Fungi Infesting Easel Oil Paintings at
University of Santo Tomas Museum of Arts and Sciences"

- **Italian Scholarship Grant**

Restoration and Conservation of Artworks Attacked by Biological Agents
Istituto Centrale Per Il Restauro, Rome, Italy (January 1-June 30, 2004)

- **B.S. Biochemistry**

University of Santo Tomas

- **Professional Teaching Certification Program (Major in Biological Science)**

Caloocan City Polytechnic College

PUBLICATIONS

Book:

Co-author in **LET Reviewer in Biology, 2006-2010 eds.** Published by MET Inc.
 ISBN # 97193249-6-1, sold in National Bookstores

Articles:

- **Understanding Museum Pests: The Molds.** CFAD Atelier Journal, University of Santo Tomas, Vol. 2 No. 1, 2003-2004, pp. 80-83
- **On the Conservation of 20th Century Color Photographs Attacked by Molds.** CFAD Atelier Journal, UST., Vol. 2 No. 1, 2003-2004, pp. 106-113
- **Witnessing the Glory of Italy in Its Art History and Ancient Spaces.** CFAD Atelier Journal, UST, Vol. 3 No. 1, 2004-2005, pp. 55-72
- _____. Panorama Magazine, November 13, 2005, pp. 12, 13, & 21.
- **Deterioration of Paintings and Painting Components Caused by Microorganisms.** CFAD Atelier Journal, UST., Vol. 3 No. 1, 2004-2005, pp. 91-94
- **Microbial Deterioration of Painting Materials.** CFAD Atelier Journal, UST., Vol. 3 No. 1, 2004-2005, pp. 94-97.
- **Conservation of Paintings Attacked by Molds.** In College Freshman English Book II. Agalabia, U., Aranda, R., et. al., pp. 124-125, UST Publishing House, 2004
- **Today's Restoration Establishments.** CFAD Atelier Journal, UST., Vol. 4 & 5 No. 1, 2005-2006 & 2006-2007, pp. 95-99

RESEARCH WORK

- **Indoor Air Quality of Beato Angelico Building of the University of Santo Tomas** -Commissioned by UST (Nov. 2009-May 2010)

WEBSITES/BLOGS

1. <http://internet-moneymakingsecrets.blogspot.com> [<http://internet-moneymakingsecrets.blogspot.com/>] ([Money-Making Secrets](#))
2. <http://internet-moneymakingsecrets.weebly.com> [<http://internet-moneymakingsecrets.weebly.com/>] ([Internet Marketing Secrets](#))
3. <http://cmpaner.blogspot.com> [<http://cmpaner.blogspot.com/>] ([The Painting Doctor-"Restorer/Conservator"](#))
4. <http://sulit.com.ph/3498047> [<http://sulit.com.ph/3498047>] ([Research assistance/Thesis Assistance/Thesis Editing](#))
5. <http://sulit.com.ph/4829772> [<http://sulit.com.ph/4829772>] ([LET Review by a LET Topnotcher and Veteran Reviewer](#))
6. <http://sulit.com.ph/5040331> [<http://sulit.com.ph/5040331>] ([Lotto Secrets Revealed!](#))
7. <http://sulit.com.ph/5058879> [<http://sulit.com.ph/5058879>] ([Muscle Building Cookbook](#))
8. <http://sulit.com.ph/5069982> [<http://sulit.com.ph/5069982>] ([Wedding Photography Secrets](#))
9. <http://sulit.com.ph/4973311> [<http://sulit.com.ph/4973311>] ([Food Cart Franchise Business](#))
10. <http://sulit.com.ph/4833582> [<http://sulit.com.ph/4833582>] ([St. Peter Life Plan and Memorial Chapels](#))
11. <http://sulit.com.ph/4186306> [<http://sulit.com.ph/4186306>] ([Art and Craft Materials for Sale At Low Price!](#))
12. <http://sulit.com.ph/4621349> [<http://sulit.com.ph/4621349>] ([Cleaning and Restoration of Paintings](#))
13. <http://sulit.com.ph/4869897> [<http://sulit.com.ph/4869897>] ([Natracare Food Supplements](#))
14. <http://sulit.com.ph/4802983> [<http://sulit.com.ph/4802983>] ([LET Reviewer Books](#))
15. <http://sulit.com.ph/5021693> [<http://sulit.com.ph/5021693>] ([How to Lose Weight Fast!](#))
16. <http://sulit.com.ph/5093345> [<http://sulit.com.ph/5093345>] ([How to Stop Hair Loss and Regrow It the Natural Way](#))
17. <http://sulit.com.ph/5126659> [<http://sulit.com.ph/5126659>] ([How to Get Pregnant Fast!](#))
18. <http://sulit.com.ph/4930508> [<http://sulit.com.ph/4930508>] ([Condo for Rent at 39K Infinity Tower, Global City, Taguig](#))

WORK EXPERIENCE

- Instructor 5, CFAD, IPEA, Pharmacy, CTHM, University of Santo Tomas

SY 1995-Present

*Subjects taught: Organic Chemistry lab., **Statistics**, College Algebra, Algebra with Trigonometry, Business Math, Physics, Plane & Solid Geometry, Environmental Science, Biology*

- Part Time Instructor, Our Lady of Perpetual Help College, Manila

Subjects taught: Food Microbiology (Lecture and Laboratory)

- Part Time Instructor, St. Paul's College, Quezon City

Subjects taught: Lec. & Lab: General Microbiology, Biochemistry, Microtechnique

- Part Time Instructor, Unciano Colleges and General Hospital, Inc., Manila

*Subjects taught: Lec. & Lab: General Microbiology and Parasitology, Inorganic Chemistry, Comparative Anatomy, Botany, Organic Chemistry, General Zoology, Biology, Biochemistry***OTHER PROFESSIONAL EXPERIENCE**

- **Editor and Professional Consultant**, MET Publishing House, Manila
- **Microbiologist**, Silver Swan Manufacturing Inc., Panghulo, Malabon
- **Biochemist**, Watercare Philippines, Inc., Valenzuela City
- **Food Production Researcher(Mushroom Culture)**, TWH, Inc., Cainta Rizal
- **Review Director for LET**, Center for Educational Excellence, Inc.
- **Project Consultant on "Biodeterioration of Artworks"**, Paper Conservation Laboratory, Archives Dept., Arzobispado de Manila

Projects: Conservation of paintings by Fernando Amorsolo, Botong Francisco, Ben Cab, Cezar Legaspi, Simon Flores, Betsy Westerndorp

- **Licensure Exams For Teachers (LET) Reviewer at:**

- Malabon City University, MET Review Center, UST-College of Education, Caloocan Polytechnic College, Trinity College, & Center for Educational Excellence Inc.

AWARDS AND HONORS

- Beato Angelico Service Award
- **10th Placer (85.60%)**, Licensure Examinations for Teachers (LET)
- **Full College Scholarship** by Lourdes Reyes Foundation
- **Professional Civil Service Examinations, weighted ave: 86.49%**
- **Valedictorian**, High School
- **Salutatorian**, Elementary
- **Certificate of Appreciation** as resource speaker on the topic "Visual Arts and Restorations", Faculty-Student Art Forum, Beato Angelico Bldg., UST.
- **Recognition Award** for invaluable support and committed service to HARIBON UST as adviser from 2002-2004
- **Honored as 4th Degree(highest degree) member** of the Knights of Columbus

Given by Philippine District IV-NCR

- **Loyalty and Faithful Award** for 13 years of Service

Knights of Columbus UST- Faculty Council 4321

- **Dedicated and Competent Service Award** as LET Reviewer

Malabon City University

- **Champion**, Pautakan Quiz Bee for Coaches, UST
- **Family of the Year Award**

Knights of Columbus UST Faculty Council 4321

- **UST Graduate School Thesis Writing Grant**

UST Graduate School Alumni Association

- **Certificate of Recognition** for invaluable Contribution as Lecturer/Reviewer

Pilot Project on Review Classes for Licensure Examinations for Teachers College of Education, UST

- **Certificate of Appreciation** as guest speaker on the topic "Products that Cause Cancer", given by NEWAYS International (Phils.), Makati City

TRAINING /SEMINAR WORKSHOPS

- **Seminar on Test and Measurement Evaluation**
- **Seminar on Principles/Philosophy of Education**
- **Faculty Development Seminar**

- **Traditional Filipino Art**
- **Curriculum Development**
- **Rubrics Development Across Disciplines**
- **Certificate on Adobe Photoshop**
- **Certificate on PC Troubleshooting and Networking**
- **The Ethics of Teaching**
- **Rights and Responsibilities of the Faculty Members, Academic and Administrative Officials and Office Staff Seminar**
- **UST-CFAD Planning and Development Seminar**
- **Shepherding the Shepherds**
- **Workshop on Syllabus Construction**
- **Textbook and Learning Materials Development**
- **Computer Literacy on Adobe Illustrator, Photoshop, & MS Excel**
- **Symposium on Waste Management**
- **Ecological Symposium**
- **Bringing Out the Best in Me and the Best in You**
- **Integrating Media in Classroom Instruction(Design, Production, and Utilization of Media)**
- **Principles and Methods of Humane Educators**
- **Certificate on Basic Industrial Electronics**
- **Certificate on Information Technology**
- **Symposium on the Preservation of our Environment**
- **Research Colloquia on Indoor Air and Water Quality in Relation to Building Design**
- **Convention of Philippine Association of Academic Biochemists,**
- **16th Annual Convention of Philippine Biochemical Society**
- **Script Writing Workshop**
- **Basic Business and Financial Management**

AFFILIATIONS

- **Member, CFAD- Adhoc Committee on Math Department**
- **Member, CFAD-Committee on Environmental Advocacy**
- **Member, CFAD-Adhoc Committee on Value Formation**
- **Board of Director**

Philippine Association for the Scientific Conservation of Cultural Properties

- **Deputy Grand Knight, Knights of Columbus UST Faculty Council No. 4321**
- **Auditor**

College of Fine Arts & Design Faculty Association

- **Adviser, HARIBON UST**
- **Business Manager, NOH-SCC Alumni Association**
- **Member, Outreach Program Committee**

College of Architecture and Fine Arts

LANGUAGES SPOKEN

English, Filipino, Italian, Japanese

OTHER SPECIAL SKILLS/TALENTS

- Thesis Editing/Research Assistance
- Computer operation using MS Word, Excel, Powerpoint, Adobe Photoshop, Internet
- Computer Hardware repair and Software installations
- Website/Blog Construction
- Photography
- Swimming
- Playing Banduria
- Singing
- Riding ATV

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6

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