

# **80nferroni**

## **New Perspectives in Multiple Testing - 80 Years After Bonferroni**



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UniPD - 09/10/15



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 Bonferroni 

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### Bonferroni correction - Wikipedia, the free encyclopedia

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In statistics, the **Bonferroni correction** is a method used to counteract the problem of multiple comparisons. It is named after Italian mathematician Carlo Emilio ...

[Multiple comparisons problem](#) - [Holm–Bonferroni method](#) - [Boole's inequality](#)

### Carlo Emilio Bonferroni - Wikipedia

[https://it.wikipedia.org/wiki/Carlo\\_Emilio\\_Bonferroni](https://it.wikipedia.org/wiki/Carlo_Emilio_Bonferroni) ▾

Carlo Emilio Bonferroni (Bergamo, 28 gennaio 1892 – Firenze, 18 agosto 1960) è stato un matematico italiano, noto soprattutto per le disuguaglianze che ...

### 7.4.7.3. Bonferroni's method

[www.itl.nist.gov/div898/handbook/.../prc473.htm](http://www.itl.nist.gov/div898/handbook/.../prc473.htm) ▾ [Traduci questa pagina](#)

Simple method, The **Bonferroni method** is a simple method that allows many comparison statements to be made (or confidence intervals to be constructed) while ...


### Bonferroni Correction -- from Wolfram MathWorld


[mathworld.wolfram.com](http://mathworld.wolfram.com) > ... > [Statistical Tests](#) ▾ [Traduci questa pagina](#)

The **Bonferroni correction** is a multiple-comparison correction used when several dependent or independent statistical tests are being performed simultaneously ...

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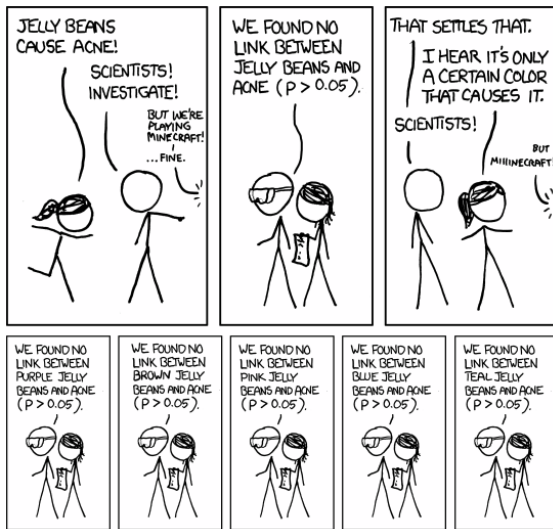
[Carlo Emilio Bonferroni \(...](#)  
Data di nascita: 28 genna...  
Data di morte: 18 agosto ...







# Search for Images



# (minimal) Bibliography

- Born: 28 January 1892, Bergamo
- Died: 18 August 1960, Firenze
- Studied conducting and piano at the Conservatory in Torino
- Degree of laurea in Torino under Peano and Segre,
- Abroad (Wien and Zürich) and
- Assistant professor at the Polytechnic in Torino.
- He served in the 1914-18 war in the engineers.
- 1923: chair of financial mathematics at the Economics Institute in Bari.
- 1933: Firenze, where he held his chair until his death.

Documentation: Wiki, Michael Dewey, Corrado Crocetta



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**A sharper Bonferroni procedure for multiple tests of significance**  
[Y Hochberg](#) - [Biometrika](#), 1988 - [Biometrika Trust](#)  
Abstract A simple procedure for multiple tests of significance based on individual p-values is derived. This simple procedure is sharper than Holm's (1979) sequentially rejective procedure. Both procedures contrast the ordered p-values with the same set of critical ...  
Citato da 3152 [Articoli correlati](#) [Tutte e 14 le versioni](#) [Cita](#) [Salva](#) [Altro](#)

**[HTML] What's wrong with Bonferroni adjustments**  
[TV Perneger](#) - [BMJ: British Medical Journal](#), 1998 - [ncbi.nlm.nih.gov](#)  
Qualitative research may seem unscientific and anecdotal to many medical scientists. However, as the critics of evidence based medicine are quick to point out, medicine itself is more than the application of scientific rules. 1 Clinical experience, based on personal ...  
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**An improved Bonferroni procedure for multiple tests of significance**  
[RJ Simes](#) - [Biometrika](#), 1986 - [Biometrika Trust](#)  
Abstract A modification of the **Bonferroni** procedure for testing multiple hypotheses is presented. The method, based on the ordered p-values of the individual tests, is less conservative than the classical **Bonferroni** procedure but is still simple to apply. A ...  
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**Multiple significance tests: the Bonferroni method**  
[JM Bland](#), [DG Altman](#) - [Bmj](#), 1995 - [bmj.com](#)  
Lee et al simulated a clinical trial of the treatment of coronary artery disease by allocating 1073 patient records from past cases into two "treatment" groups at random.1 They then analysed the outcome as if it were a genuine trial of two treatments. The analysis was quite detailed ...  
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**Arguments for rejecting the sequential Bonferroni in ecological studies**  
[MD Moran](#) - [Oikos](#), 2003 - [JSTOR](#)  
Interpretation of results that include multiple statistical tests has been an issue of great

# The Two publications we had in mind

- Bonferroni, C. E. 'Il calcolo delle assicurazioni su gruppi di teste'. In *Studi in Onore del Professore Salvatore Ortu Carboni*. Rome: Italy, pp. 13-60, 1935.
- Bonferroni, C. E. 'Teoria statistica delle classi e calcolo delle probabilità'. *Pubblicazioni del R Istituto Superiore di Scienze Economiche e Commerciali di Firenze* 8, 3-62, 1936.



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**CE Bonferroni - 1935** - Tipografia del Senato

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**CE Bonferroni - 1936** - Libreria internazionale Seeber

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Yoav Benjamini and Yosef Hochberg Controlling the False Discovery Rate



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## Controlling the false discovery rate: a practical and powerful approach to multiple testing

[purdue.edu \[PDF\]](#)

[Y Benjamini](#), [Y Hochberg](#) - Journal of the Royal Statistical Society. Series B ..., 1995 - JSTOR

The common approach to the multiplicity problem calls for controlling the familywise error rate (FWER). This approach, though, has faults, and we point out a few. A different approach to problems of multiple significance testing is presented. It calls for controlling the ...

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# Bonferroni Inequalities

## Frist citations of Bonferroni Inequalities

- Fréchet (1940)
- Paulson (1952)
- Feller (1968)

Bonferroni Correction use Bonferroni Inequalities and is due to Dunn (1959)



# Then?

- We know few about his life
- His works are exentially unknown
- He didn't invented his method



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## BUT

- Everyone knows and uses the Bonferroni Method (and Inequalities)
- Everyone compares to these methods
- His works shed a light on the problem of multiple testing



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**We celebrate an Idea more than a Person**



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- 20% students
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50% from other departments or research institutions
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  - University of Ljubljana: 4
  - University of Firenze: 3
  - Molise + Macearta + Avellino + Milano + Torino: 6

