

Authors: MELO 3D Project Team, 2011

License: Unless otherwise noted, this material is made available under the terms of the **Creative Commons Attribution-ShareAlike 3.0 License:**
<http://creativecommons.org/licenses/by/3.0/>

We have reviewed this material in accordance with U.S. Copyright Law **and have tried to maximize your ability to use, adapt it.** The citation key on the following slide provides information about how you may share and adapt this material.

Copyright holders of content included in this material should contact open.michigan@umich.edu with any questions, corrections, or clarification regarding the use of content.

For more information about **how to cite** these materials visit <http://open.umich.edu/privacy-and-terms-use>.

Any **medical information** in this material is intended to inform and educate and is not a tool for self-diagnosis or a replacement for medical evaluation, advice, diagnosis or treatment by a healthcare professional. Please speak to your physician if you have questions about your medical condition.

Viewer discretion is advised: Some medical content is graphic and may not be suitable for all viewers.



Attribution Key

for more information see: <http://open.umich.edu/wiki/AttributionPolicy>

Use + Share + Adapt

{ Content the copyright holder, author, or law permits you to use, share and adapt. }



Public Domain Government: Works that are produced by the U.S. Government. (17 §105)



Public Domain Expired: Works that are no longer protected due to an expired copyright term.



Public Domain Self Dedicated: Works that a copyright holder has dedicated to the public domain.



Creative Commons Zero Waiver



Creative Commons Attribution License



Creative Commons Attribution Share Alike License



Creative Commons Attribution Noncommercial License



Creative Commons Attribution Noncommercial Share Alike License



GNU - Free Documentation License

Make Your Own Assessment

{ Content Open.Michigan believes can be used, shared, and adapted because it is ineligible for copyright. }



Public Domain Ineligible: Works that are ineligible for copyright protection in the U.S. (17 USC §102(b))

*laws in your jurisdiction may differ

{ Content Open.Michigan has used under a Fair Use determination. }



Fair Use: Use of works that is determined to be Fair consistent with the U.S. Copyright Act. (17 USC §107) *laws in your jurisdiction may differ

Our determination **DOES NOT** mean that all uses of this 3rd-party content are Fair Uses and we DO NOT guarantee that your use of content is Fair.

To use this content you should **do your own independent analysis** to determine whether or not your use will be Fair.

Linear Regression Applet

Josh Errickson & James Henderson

University of Michigan, Department of Statistics

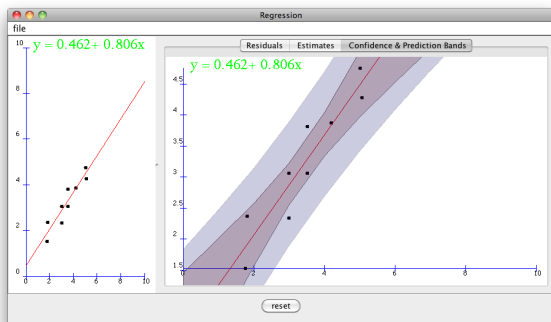
June 14, 2011

Source

- Found via CAUSEweb.org, search for “Regression”
- Author: Charles Stanton, CSU San Bernardino

<http://www.math.csusb.edu/faculty/stanton/probstat/regression.html>

Description



- Allows creation of a scatterplot by point-and-click, and performs linear regression upon the points
- Provides numerical output, a plot of residuals and a plot of confidence & prediction interval bands (pictured)

Pros

- Very feature filled, covers most of the core ideas of Regression, for example
 - confidence & prediction bands
 - standard numeric output
- Very interactive
 - Easy to input data and make minor modifications/corrections
- Low learning curve for usage
- A very visual learning style
- Well-suited to build multiple learning activities focused on regression, e.g. effects of outliers, visualization of confidence & prediction intervals, strength of correlation, etc.

Cons

- Wrapper is sparse and written at a higher level than applet
- Complicated output, needs instructor guide
 - For example, the confidence & prediction intervals are not labeled, would not be immediately clear which is which
- Too many significant figures in output given the lack of precise control over point, which distracts from the big picture
- Can only add new points, can't remove or adjust existing points

Limitations

These aren't cons *per se*, more limitations for the instructor to be aware of

- Better for big picture, less so for finer details such as calculations or inference
- Each plot is on a different scale, making side-by-side comparisons less intuitive
- Default frame is Residual Plot which may not be as intuitive for students
- As always, the choice of notation (e.g. y instead of \hat{y}) needs to be mentioned to students