

# Re: How do you find derivatives in noisy data?

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*Source:* <http://sci.tech-archive.net/Archive/sci.math/2005-09/msg01123.html>

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- *From:* "Luna Sea" <nospam@xxxxxxxxxxx>
  - *Date:* Mon, 5 Sep 2005 19:53:30 -0500
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"Robert Macy" <macy@xxxxxxxxxxxxxxxx> wrote in message  
<news:1125939428.622175.64930@xx>  
> Is there some simple algorithm that finds the derivative, or second  
> derivative, in noisy data?  
>  
> The data is oversampled which causes the derivative amplitude between  
> adjacent data points to be small. This in turn enhances the noise  
> differences at each data point to dominate.  
>  
> Obviously, using two data points further away would help, but then  
> throws away all the information between.  
>  
> Does anybody know how to pull derivatives out of noisy data?  
>  
> - Robert -

Derivative amplifies the noise, so you should filter out the noise as much as possible.  
Oversampling should not increase noise, but keep it the same or lower the noise.  
Depends on the source(s) of the noise.  
Derivative will have greater variance than data

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- *References:*
    - ◆ [\*How do you find derivatives in noisy data?\*](#)
      - ◇ *From:* Robert Macy
  - Prev by Date: [\*Re: what makes it true?\*](#)
  - Next by Date: [\*Re: Woman steals 1997 dissertation\*](#)
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Re: How do you find derivatives in noisy data?

◆ *Thread*