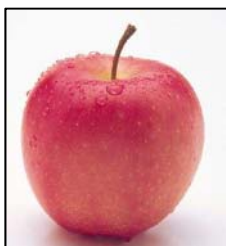




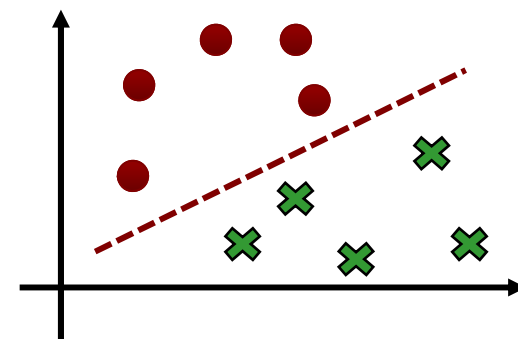
南京大學



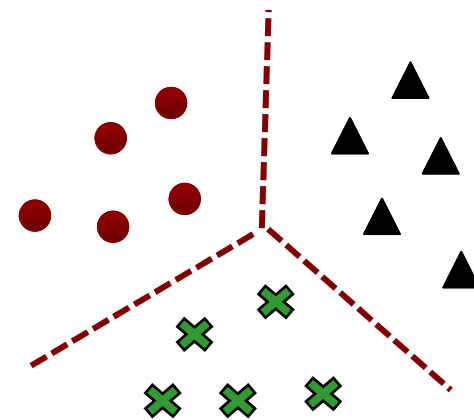




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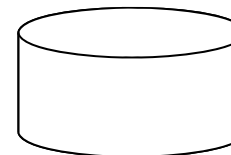
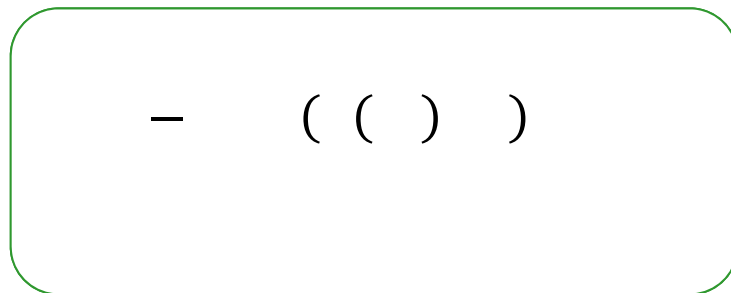
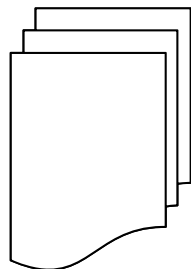


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40 ZETTABYTES
 [43 TRILLION GIGABYTES]
 of data will be created by 2020, an increase of 300 times from 2005



It's estimated that **2.5 QUINTILLION BYTES** [2.3 TRILLION GIGABYTES] of data are created each day



The FOUR V's of Big Data.

As of 2011, the global size of data in healthcare was estimated to be **150 EXABYTES** [161 BILLION GIGABYTES]



By 2014, it's anticipated there will be **420 MILLION WEARABLE, WIRELESS HEALTH MONITORS**



Volume
 SCALE OF DATA

Velocity
 ANALYSIS OF STREAMING DATA

Variety
 DIFFERENT FORMS OF DATA

Veracity
 UNCERTAINTY OF DATA

1.5 TRILLION INFORMATION during each trading session



By 2016, it is projected there will be **18.9 BILLION NETWORK CONNECTIONS**

approximately 1.5 connections per person on earth



mobile devices. Companies can leverage data to adapt their products and services to better meet customer needs, optimize operations and infrastructure, and find new sources of revenue.

By 2015 **4.4 MILLION IT JOBS** will be created globally to support big data, with 1.9 million in the United States



1 IN 3 BUSINESS LEADERS they use to make decisions



In one survey were unsure of how much of their data was inaccurate

4 BILLION+ HOURS OF VIDEO



100 MILLION TWEETS million monthly Facebook



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<http://lamda.nju.edu.cn/>

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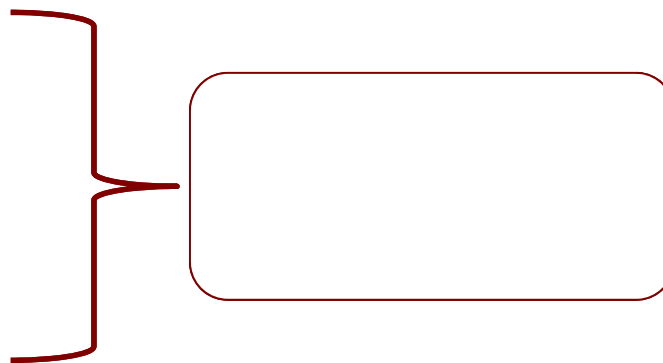
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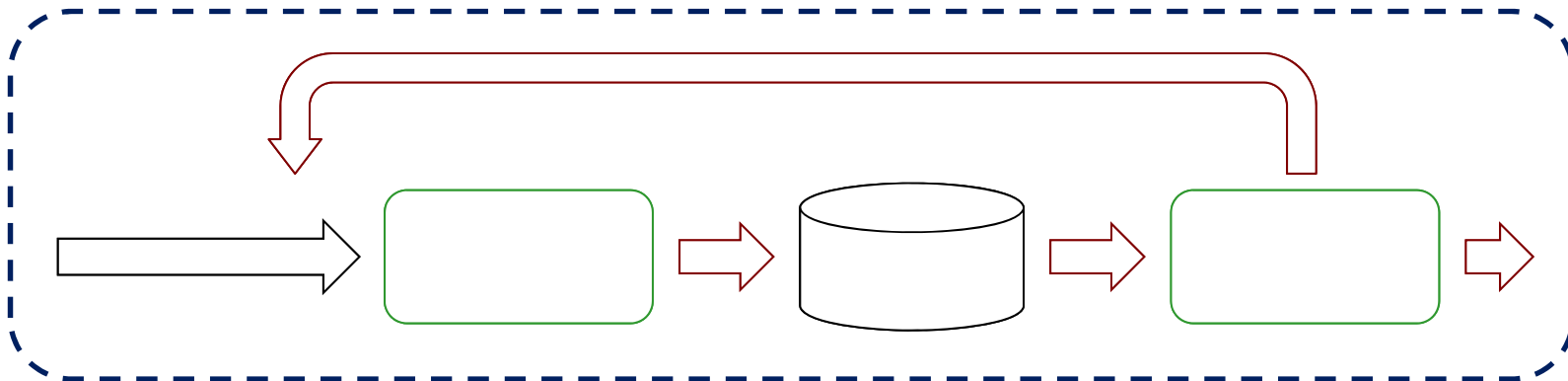






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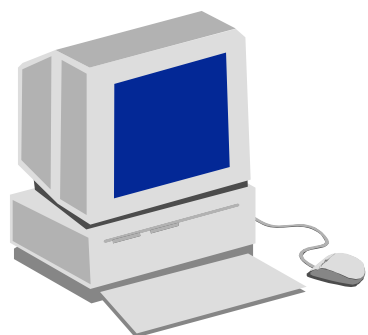
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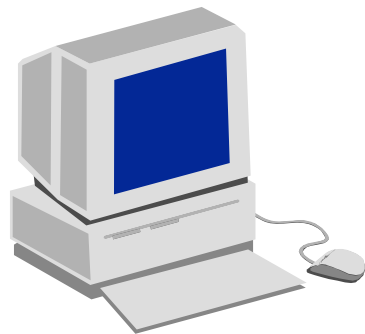
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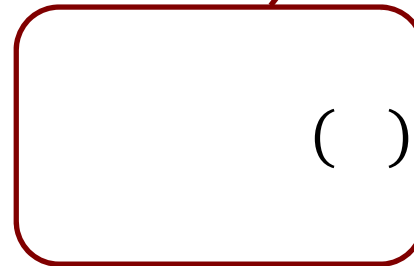
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Ader [Zhang et al, 2018]

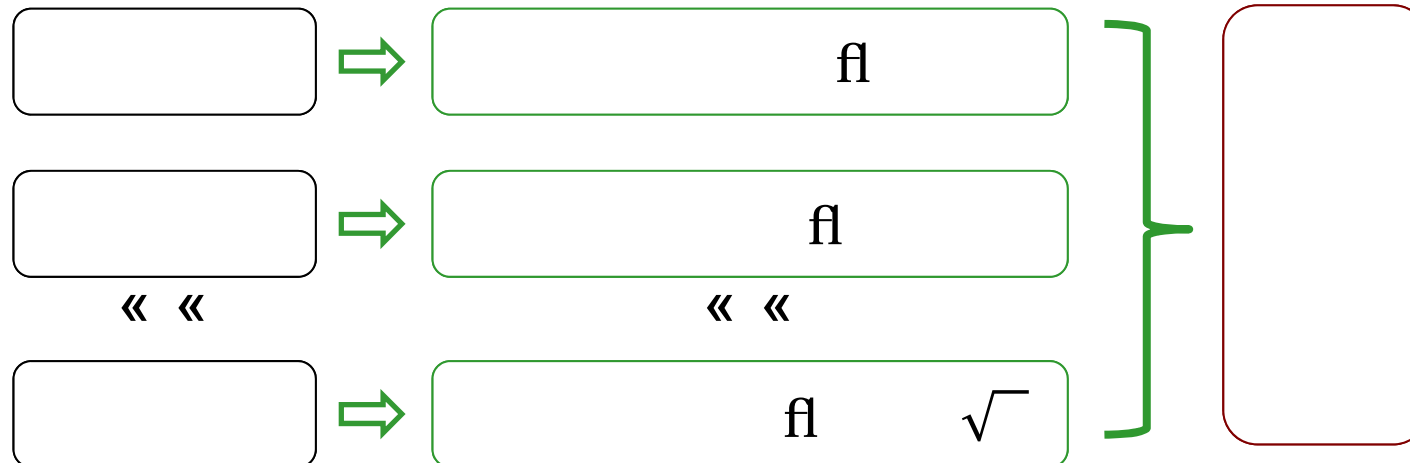


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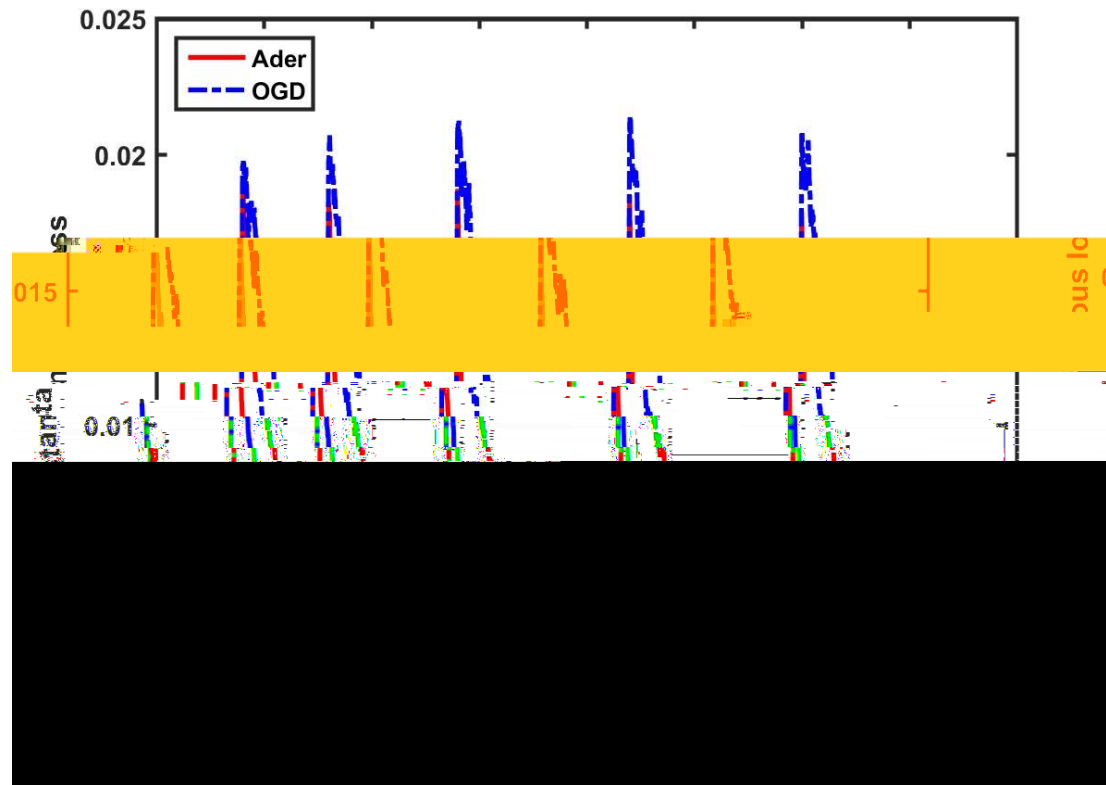
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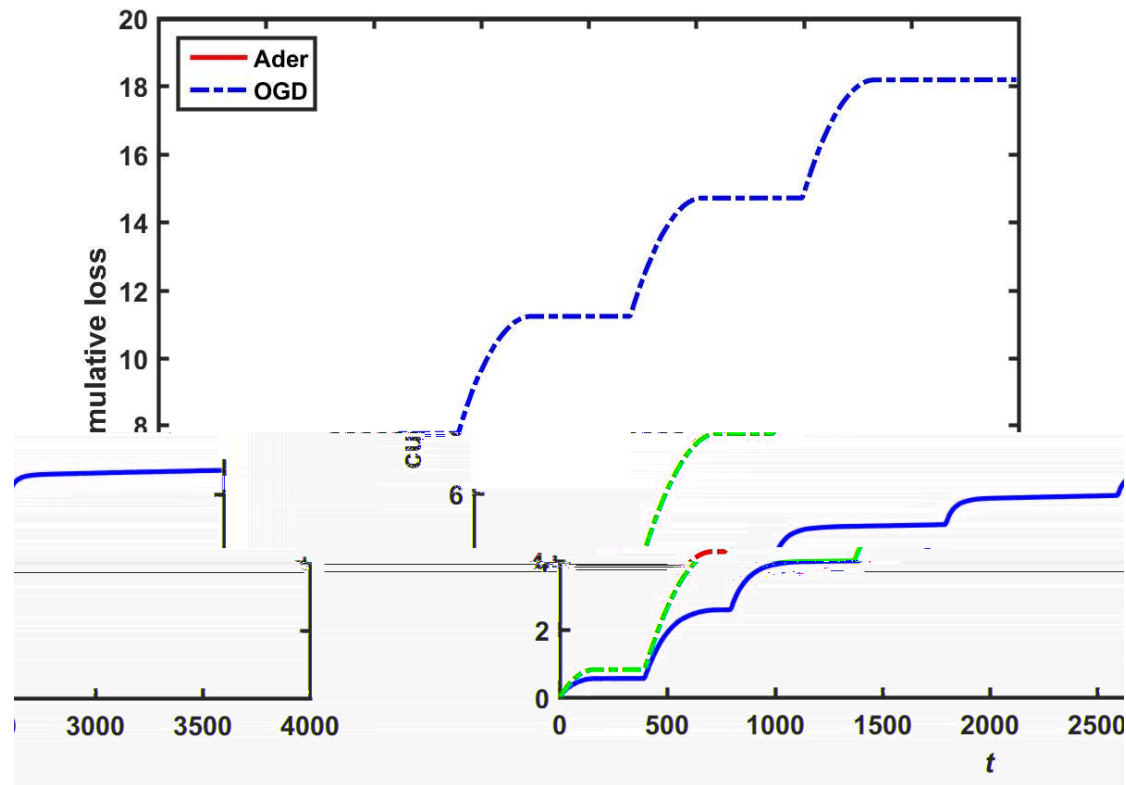
$$f(\mathbf{w}) = |\mathbf{w} \cdot \mathbf{x} - y|$$



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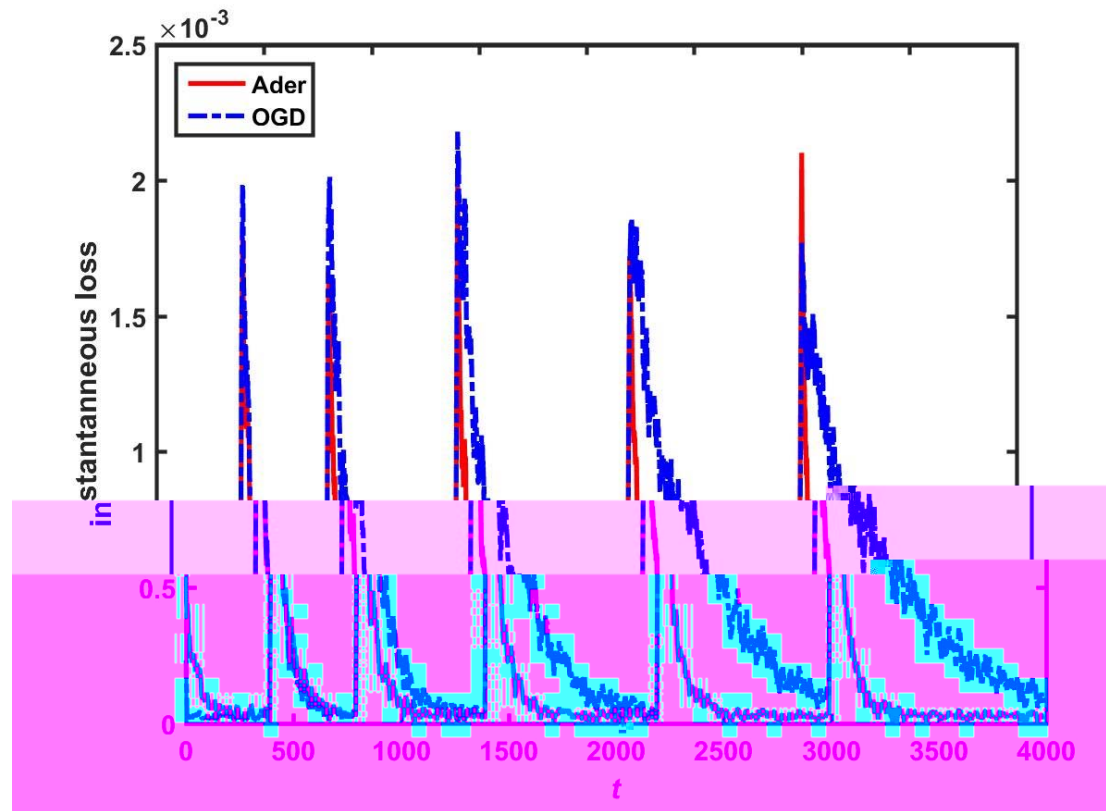
$$f(\mathbf{w}) = |\mathbf{w} \cdot \mathbf{x} - y|$$



3



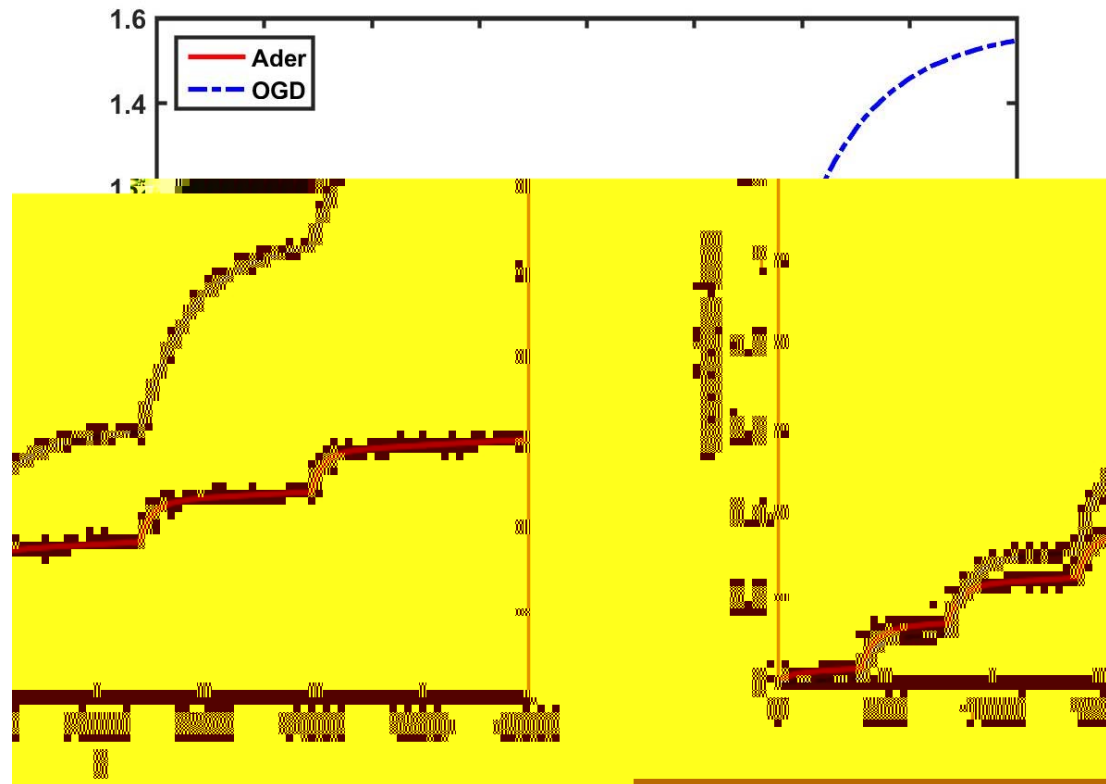
$$f(\mathbf{w}) = (\mathbf{w} \cdot \mathbf{x} - y)^2 + \lambda \|\mathbf{w}\|$$



4



$$f(\mathbf{w}) = (\mathbf{w} \cdot \mathbf{x} - y)^2 + \lambda \|\mathbf{w}\|$$







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