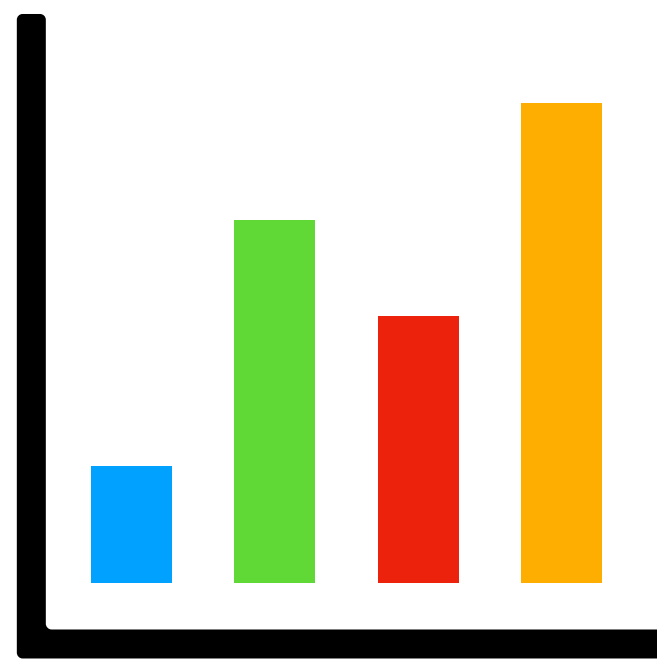


# **Domain Compression: a New Primitive**

## **Domain Compression and its Application to Randomness-Optimal Distributed Goodness-of-Fit**

**Jayadev Acharya,** Cornell University  
**Clement Canonne,** IBM Research  
**Yanjun Han,** Stanford University  
**Ziteng Sun,** Cornell University  
**Himanshu Tyagi,** IISc Bangalore

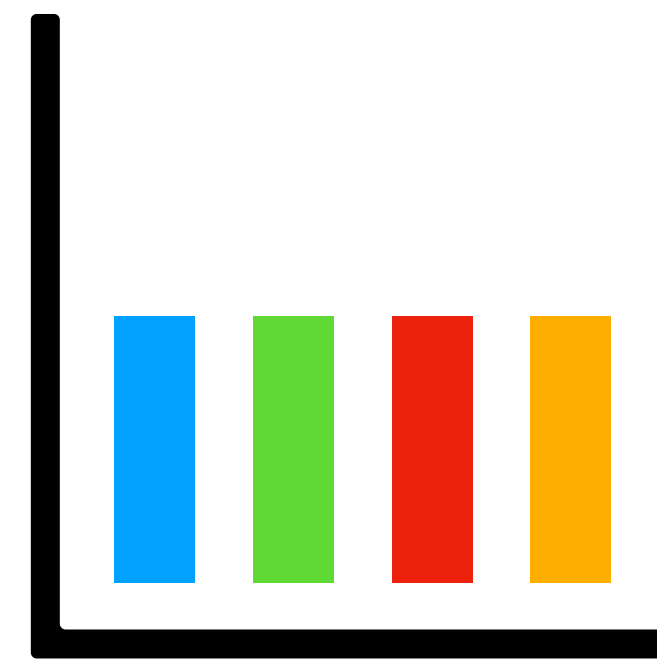
Not uniform



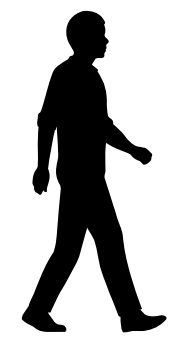
$[k]$

?

Uniform



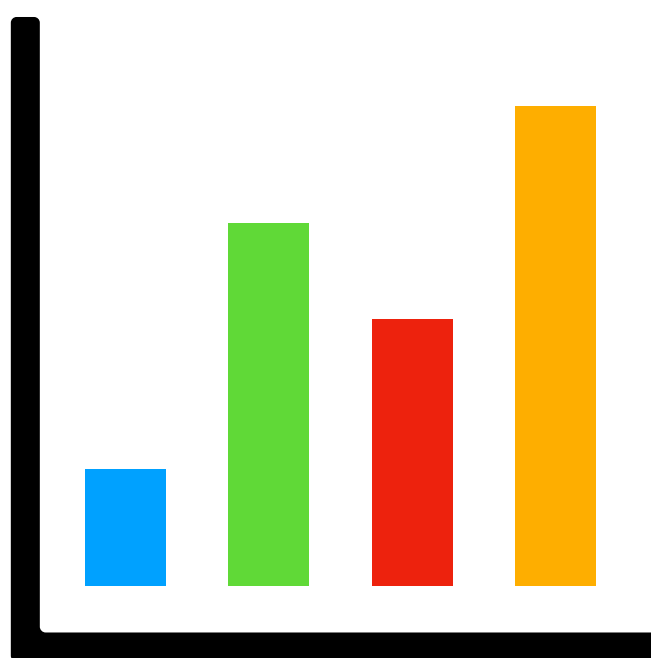
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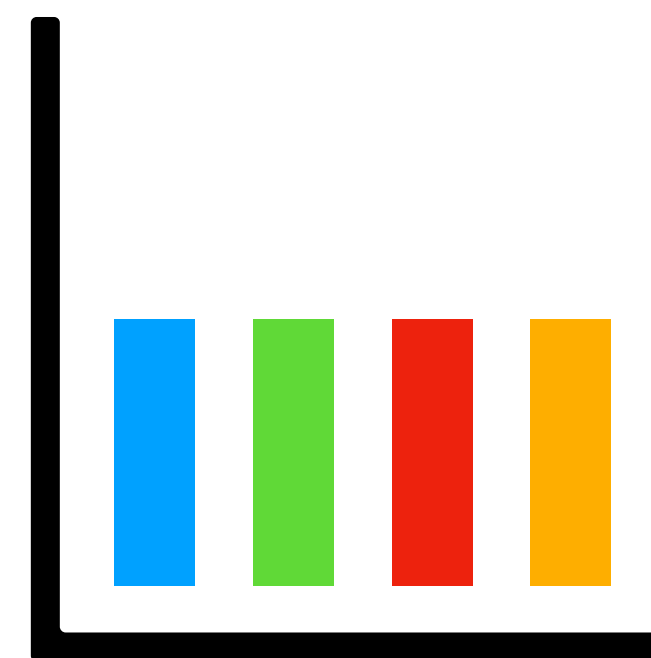
Not uniform



$[k]$

?

Uniform



$[k]$

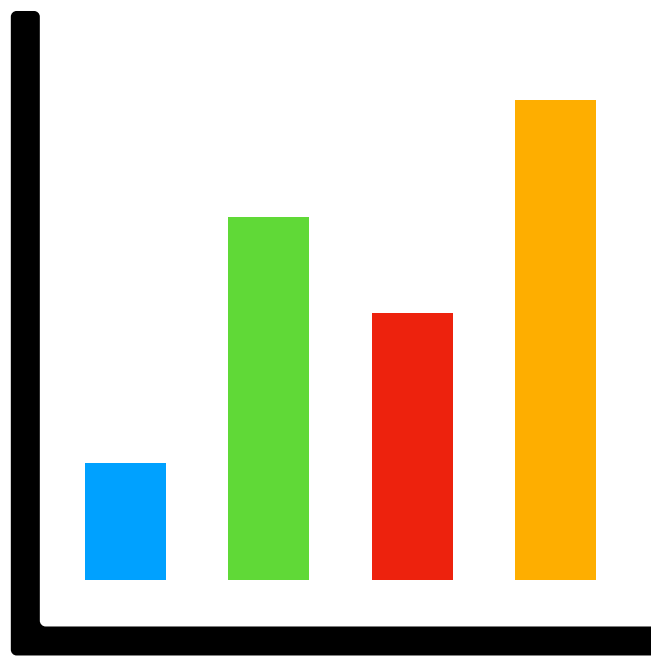


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$$\Theta(\sqrt{k})$$

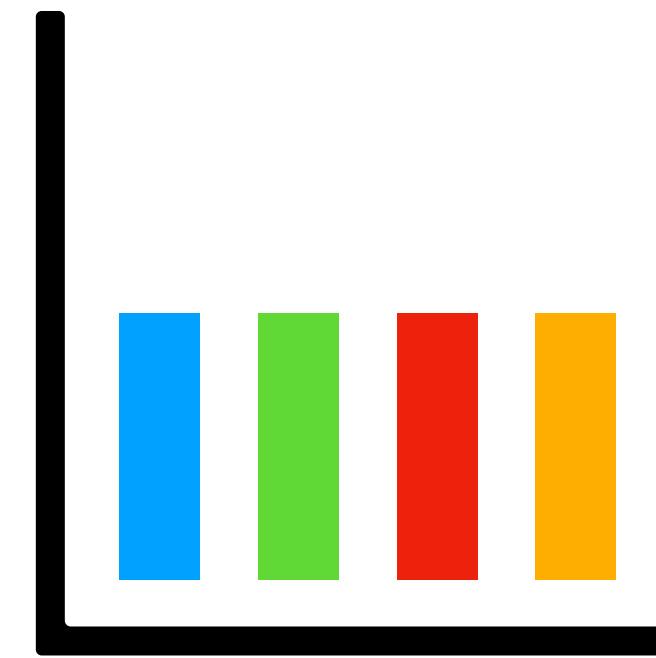
Not uniform



$[k]$

?

Uniform



$[k]$

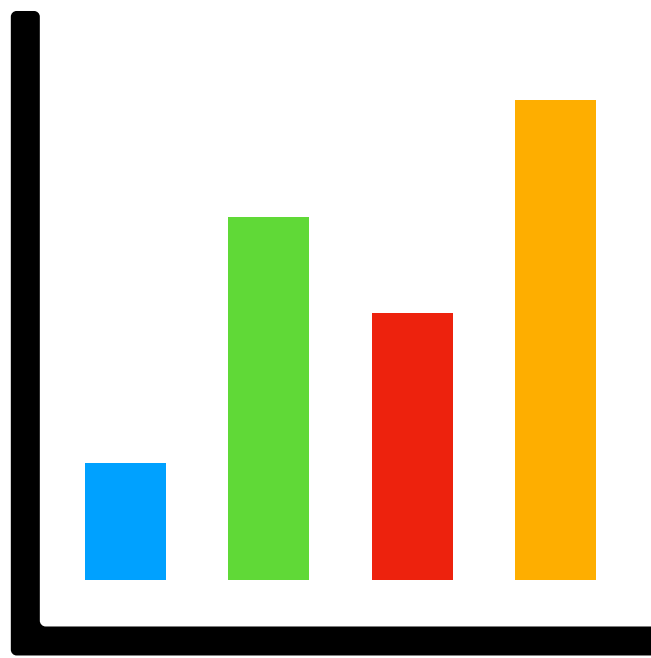


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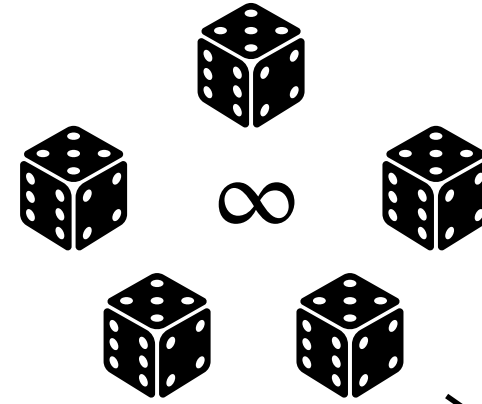
$$\Theta(\sqrt{k^3})$$

Not uniform

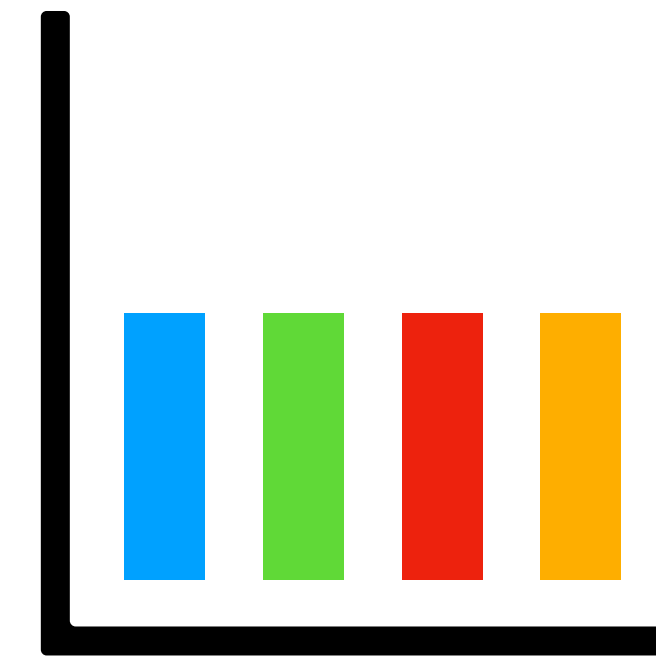


$[k]$

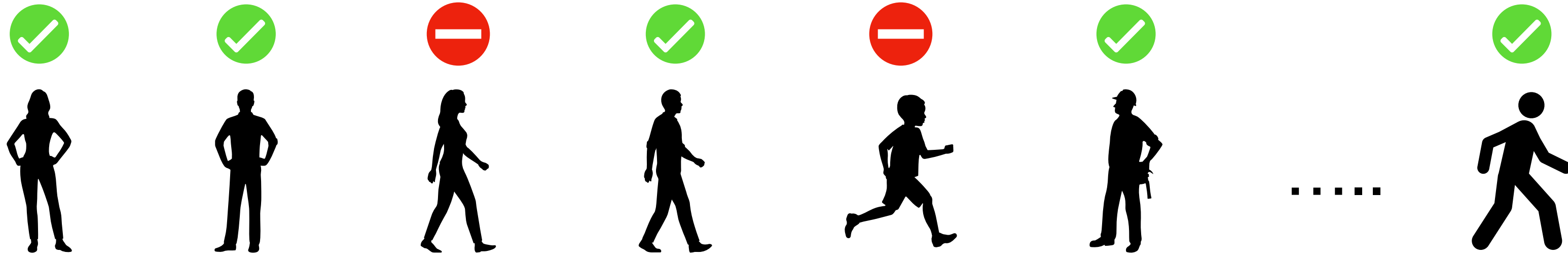
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Uniform

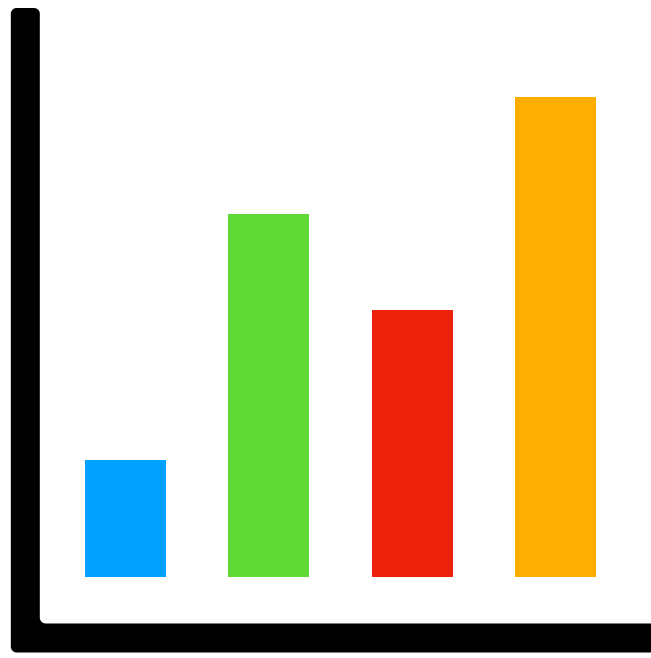


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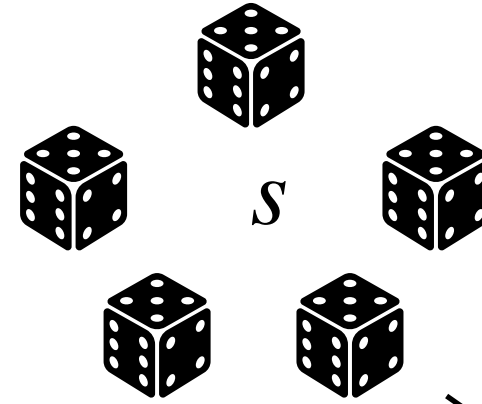
$$\Theta(\sqrt{k^2})$$

Not uniform

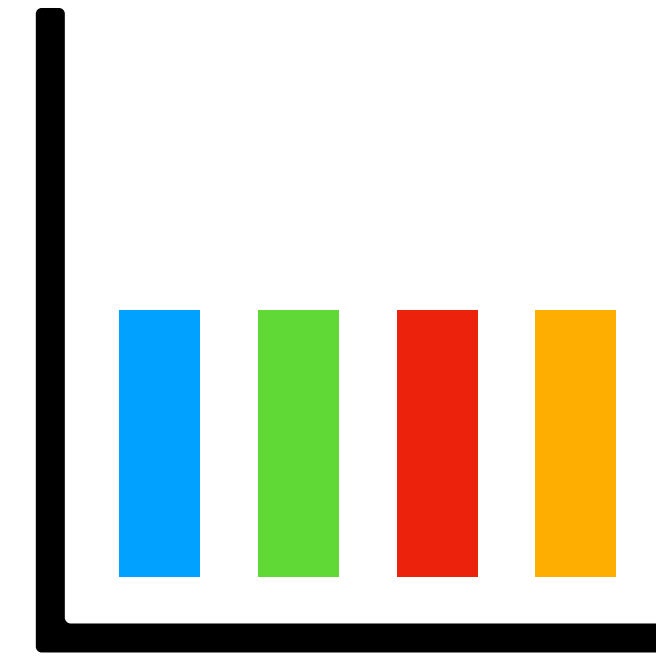


$[k]$

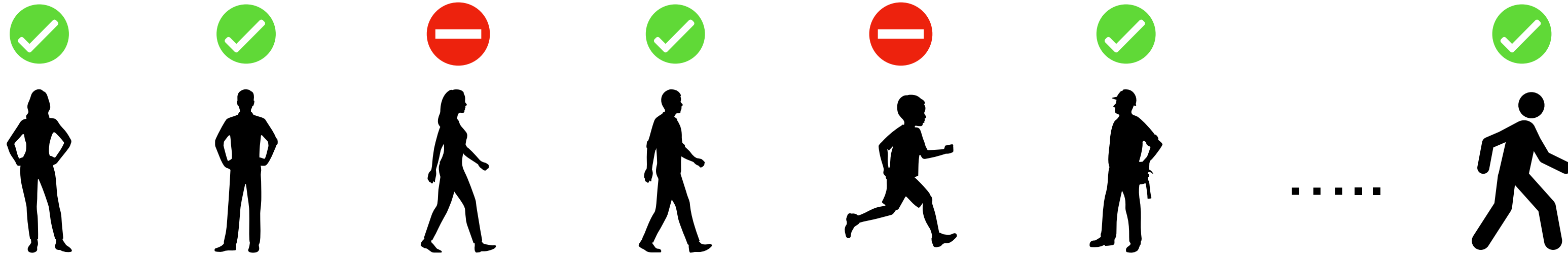
?



Uniform



$[k]$



$\Theta(?)$

Check out our full talk.

Paper #96

arXiv: 1907.08743