

Is Big Data a Big Deal?

Not Without Correct
Software!

Gregory M. Kapfhammer

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What is Big
Data?

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Electronic music group from New York City?

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Yes, but not in this context!

What is Big Data?

Electronic music group from New York City?

Yes, but not in this context!

Create **models**, make **predictions**, and take **action**!



"V" Times Three?

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"V" Times Three?

Volume

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"V" Times Three?

Volume
Velocity

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"V" Times Three?

Volume
Velocity
Variety

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Wait, have we
missed a "v"?





We Need Veracity!

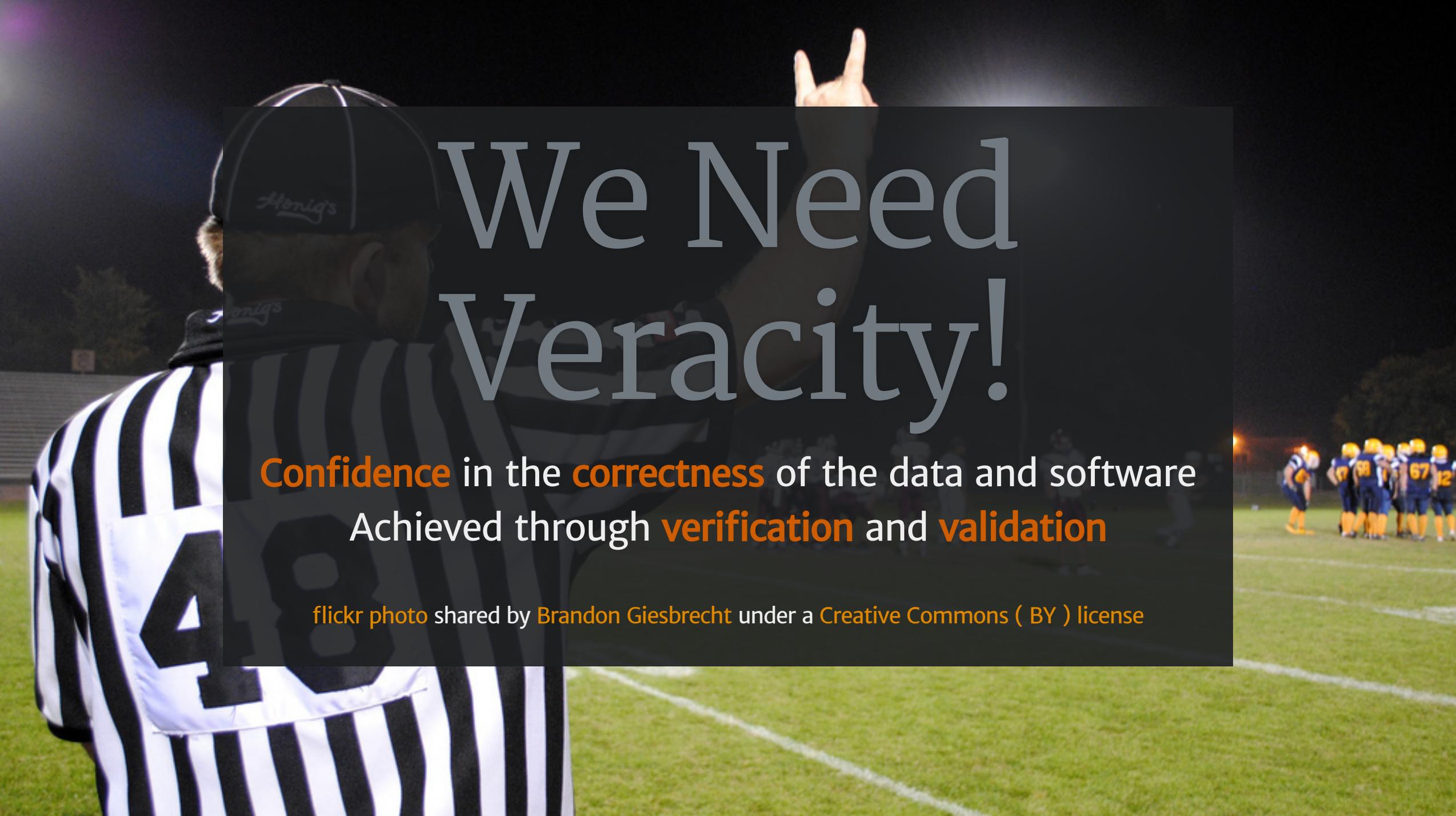
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We Need Veracity!

Confidence in the **correctness** of the data and software

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We Need Veracity!

Confidence in the **correctness** of the data and software
Achieved through **verification** and **validation**

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Software Testing

Software Testing

Execute the test cases against the system under test

Software Testing

Execute the test cases against the system under test
Check to see if the system's output is as expected



Status Report

A man is sitting on the floor, wearing a blue and white striped shirt and brown shoes. He is holding a tablet computer that displays a status report with various charts and graphs. The background is a plain, light-colored wall.

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Status Report

Testing **data mining** and **database systems**

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Status Report

Testing **data mining** and **database systems**
Research is preliminary and transfer is not common!

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Challenges?

Challenges?

Testing: scale to the level of big data systems

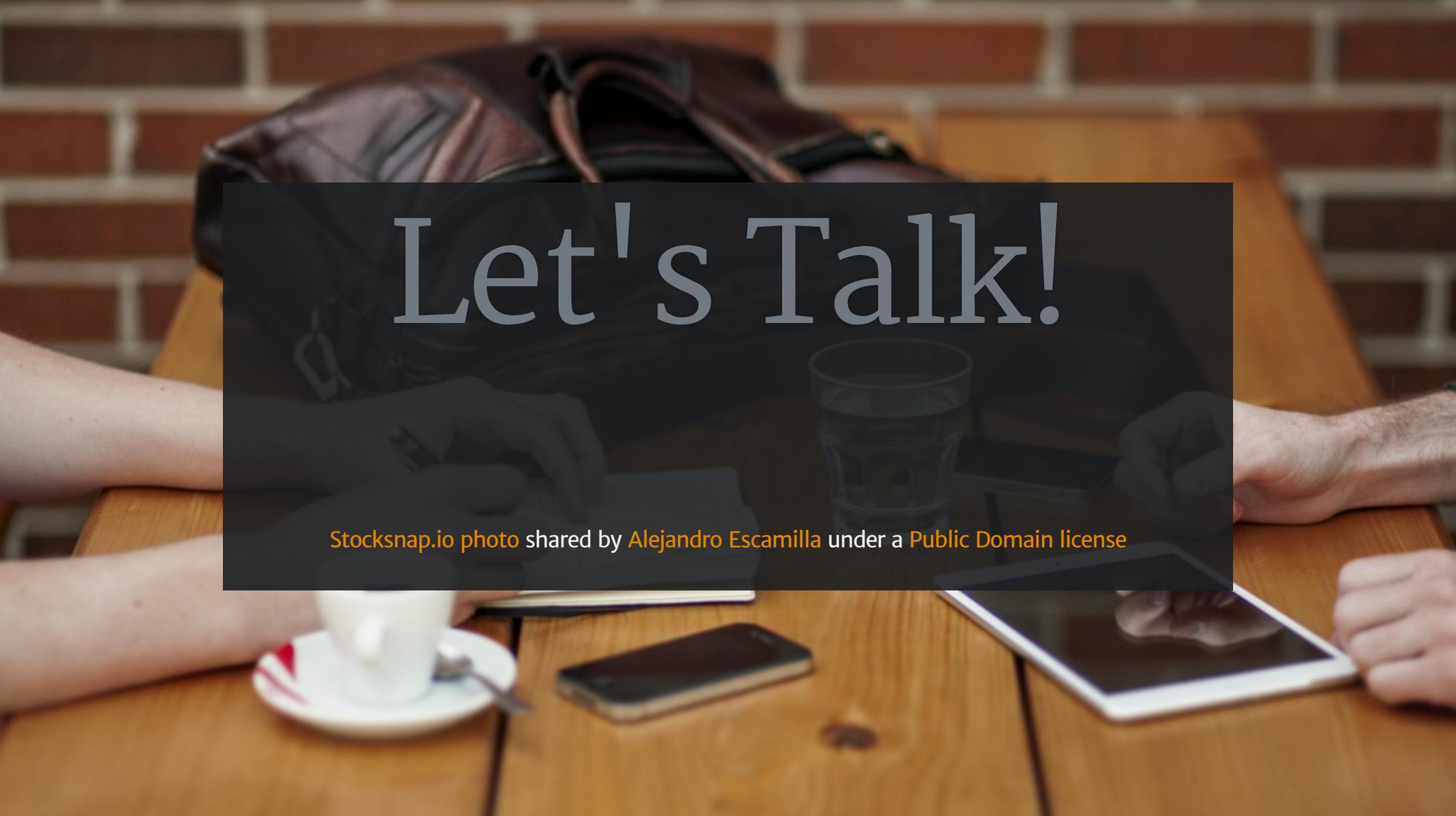
Challenges?

Testing: scale to the level of big data systems

Big Data: Holistically consider all of the four "V"s

Next Steps?





Let's Talk!

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Let's Talk!

Collaboration between research communities

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Let's Talk!

Collaboration between research communities
Demonstrate the **correctness** of big data systems

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Is Big Data a
Big Deal?

Of course it is!



A group of people, including children, are shown in a state of high excitement and joy. In the foreground, a young girl on the left is shouting with her mouth wide open, and a young boy in the center is also shouting with his mouth open. To the right, another young girl is clapping her hands and smiling broadly. The background shows other people, some of whom are also clapping, suggesting a celebratory event or performance. The overall atmosphere is one of happiness and enthusiasm.

A Bigger Deal

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A group of people, including children, are shown in a state of high excitement and joy. In the foreground, a young girl on the left is shouting with her mouth wide open, and a young girl on the right is clapping her hands. In the background, other people are visible, some also appearing to be part of the celebration. The overall atmosphere is one of collective happiness and achievement.

A Bigger Deal

Greater impact with **high-quality** big data systems

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A group of people, including children, are shown in a state of high excitement and joy. In the foreground, a young girl on the left is laughing with her mouth wide open, and a young girl on the right is clapping her hands. The background is filled with other people, some of whom are also smiling and clapping. The overall atmosphere is one of celebration and happiness.

A Bigger Deal

Greater impact with **high-quality** big data systems
Important societal benefits with **correct** predictions

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A group of diverse people, including children, cheering and clapping enthusiastically. The background is slightly blurred, focusing attention on the central text overlay.

A Bigger Deal

Greater impact with **high-quality** big data systems
Important societal benefits with **correct** predictions
Enhance and sustain our influence — **together!**

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