

NeuroData SIMPLEX Report: February 2017

The following report documents the progress made by the labs of PI Joshua T. Vogelstein and Co-PIs Randal Burns and Carey Priebe at Johns Hopkins University towards goals set by the DARPA SIMPLEX grant.

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1 Bibliography

Manuscripts

[1] J. T. Vogelstein, “Paper with a cool title,” 2017.

Invited Talks

[1] J. T. Vogelstein, “Talk with a cool title,” SIAM, JSM, NIPS, ???, Jan 2017.

Conferences

[1] J. T. Vogelstein, “Poster with a cool title,” SIAM, JSM, NIPS, ???, Jan 2017.

2 Data: What's in the Cloud

3 Statistical Theory and Methods

3.1 LOL @jovo

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Figure 1: Please provide a detailed caption for your figure.

3.2 RerF

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Figure 2: Please provide a detailed caption for your figure.

3.3 Multiscale Generalized Correlation (MGC)

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Figure 3: Please provide a detailed caption for your figure.

3.4 Discriminability

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Figure 4: Please provide a detailed caption for your figure.

3.5 Low-rank Assumption Discussion

3.6 Robust Law of Large Graphs

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Figure 5: Please provide a detailed caption for your figure.

3.7 Nonparametric Network Dependence Test

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Figure 6: Please provide a detailed caption for your figure.

3.8 Batch effect removal in dimension reduction of multiway array data

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Figure 7: Please provide a detailed caption for your figure.

3.9 Reduced Dimension Clustering

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Figure 8: Please provide a detailed caption for your figure.

4 Scalable Algorithm Implementations

4.1 FlashX

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Figure 9: Please provide a detailed caption for your figure.

4.2 ndstore

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Figure 10: Please provide a detailed caption for your figure.

4.3 ndviz

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Figure 11: Please provide a detailed caption for your figure.

4.4 knor

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Figure 12: Please provide a detailed caption for your figure.

5 Scientific Pipelines: Infrastructure & Dataset Specific Progress

5.1 SIC

5.2 ndstore

5.3 ndmg

5.4 ndviz

5.5 MRI

5.6 CLARITY

5.7 Ophys

References