Chen Data Science & AI for Neuroscience Summer School

CHEN TIANQIAO & CHRISSY INSTITUTE

Caltech

Model Engineering Principles

Sabera Talukder

What are your model engineering principles?

- GIGO ⟶ Garbage In Garbage Out

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- Ground Truth / Baselines / Reproducibility

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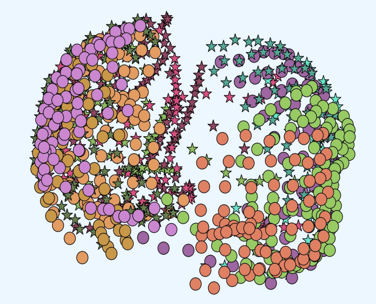

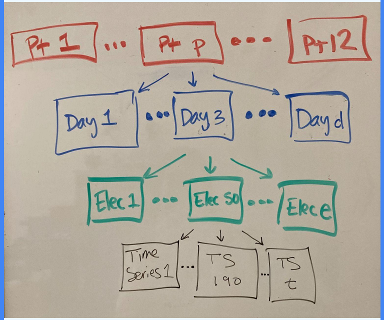

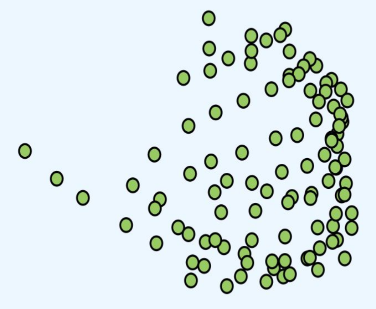

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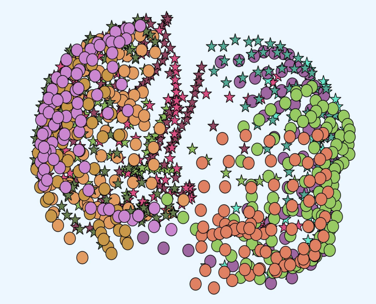

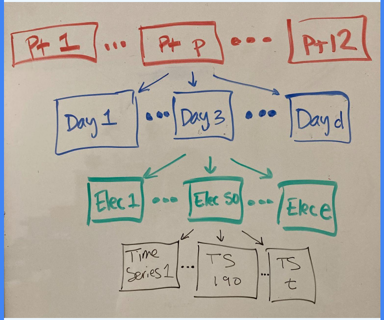

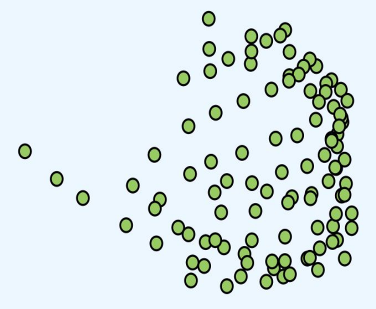

For Each
Patient Flatten
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+

PCA

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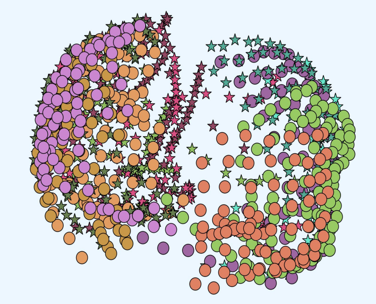

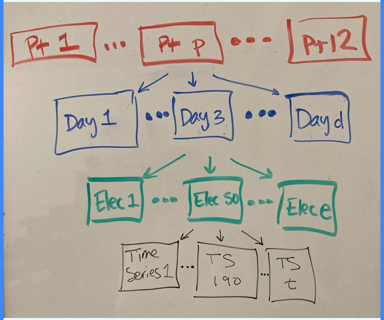

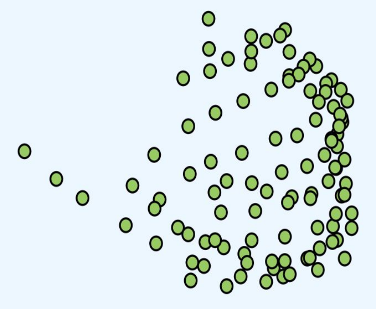

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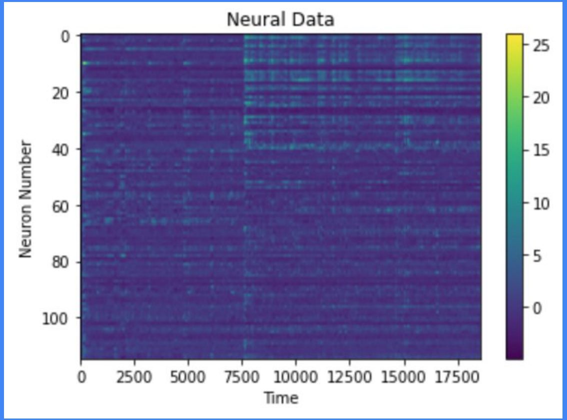

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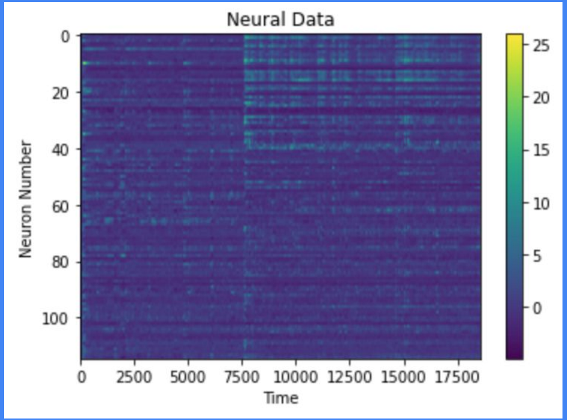

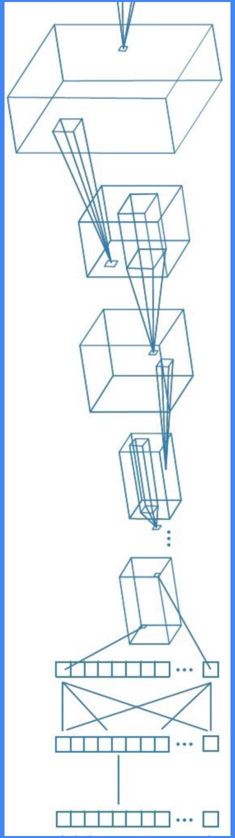

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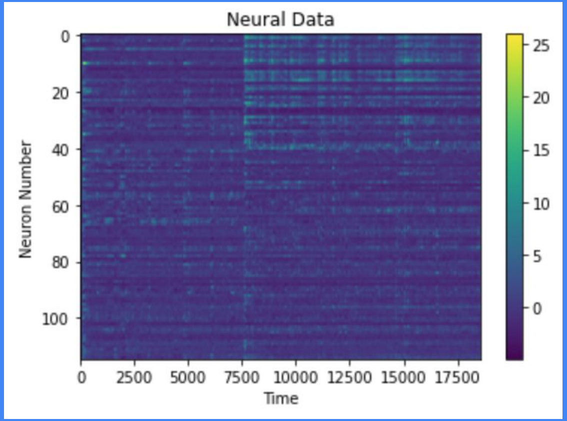

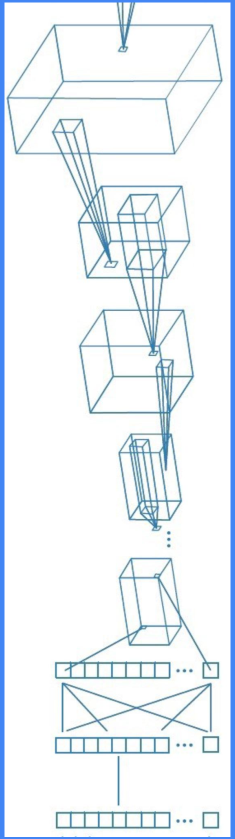

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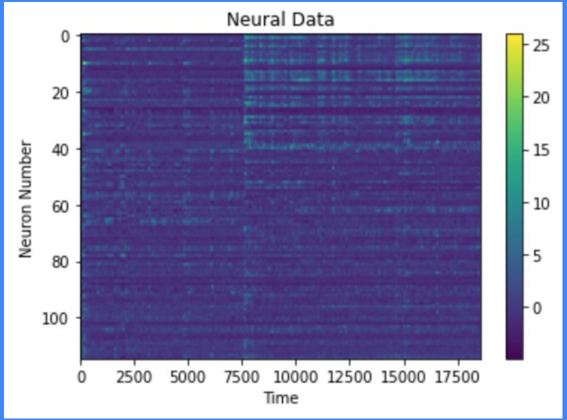

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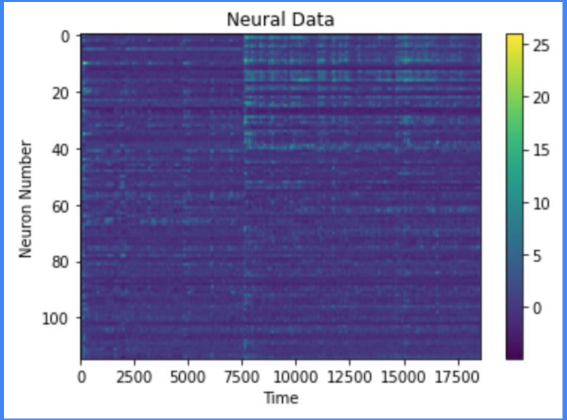

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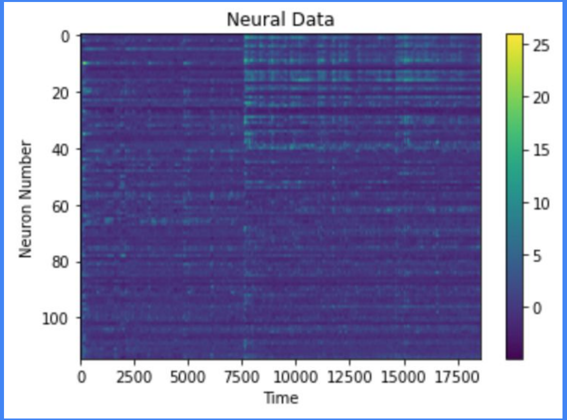

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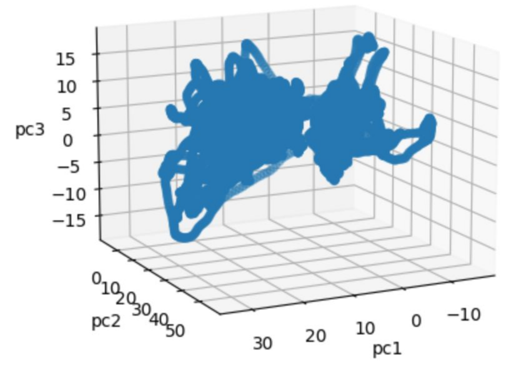

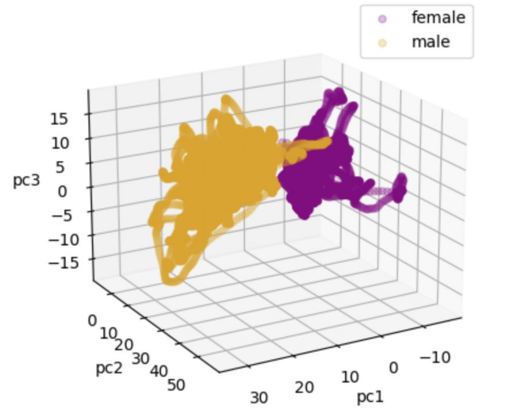

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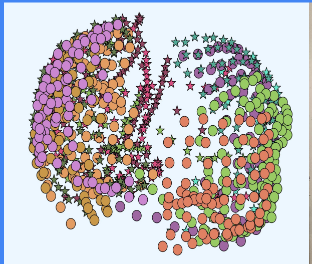

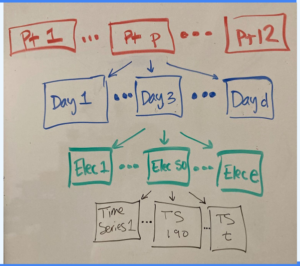

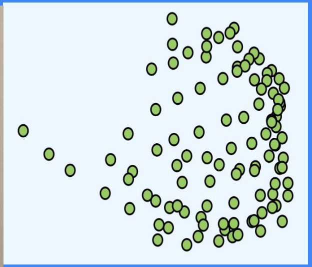

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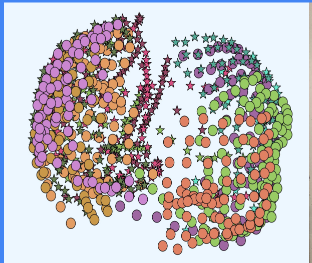

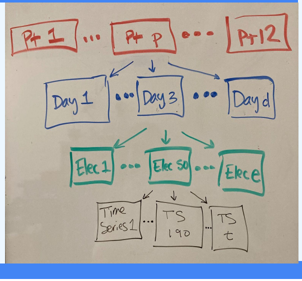

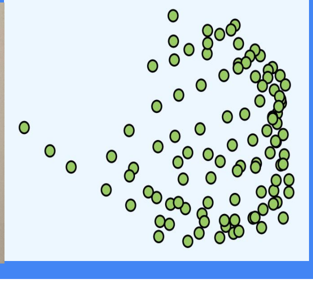

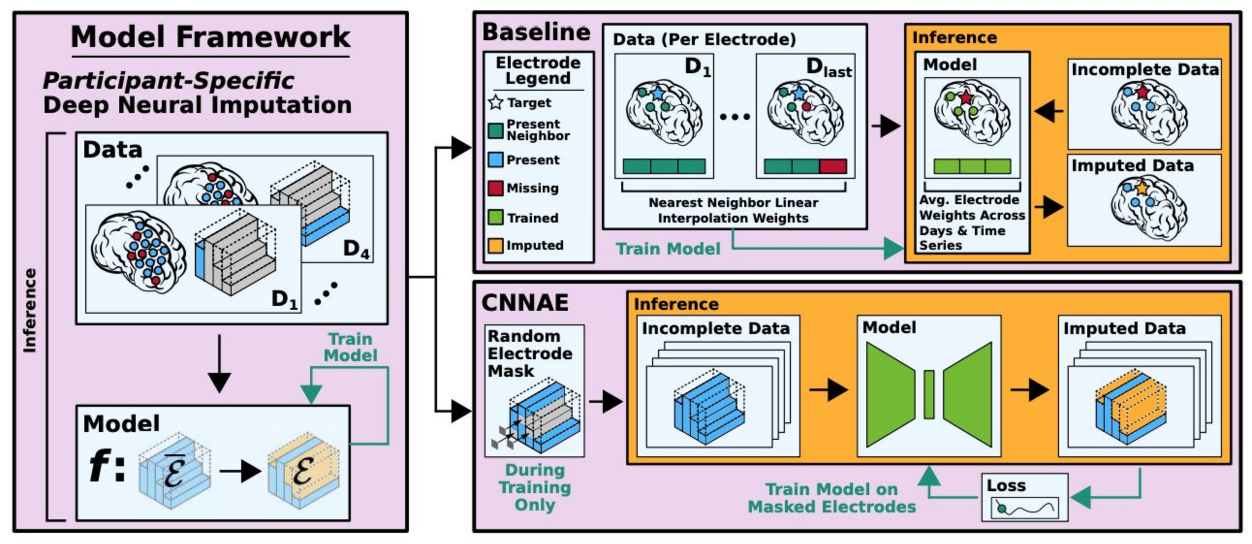

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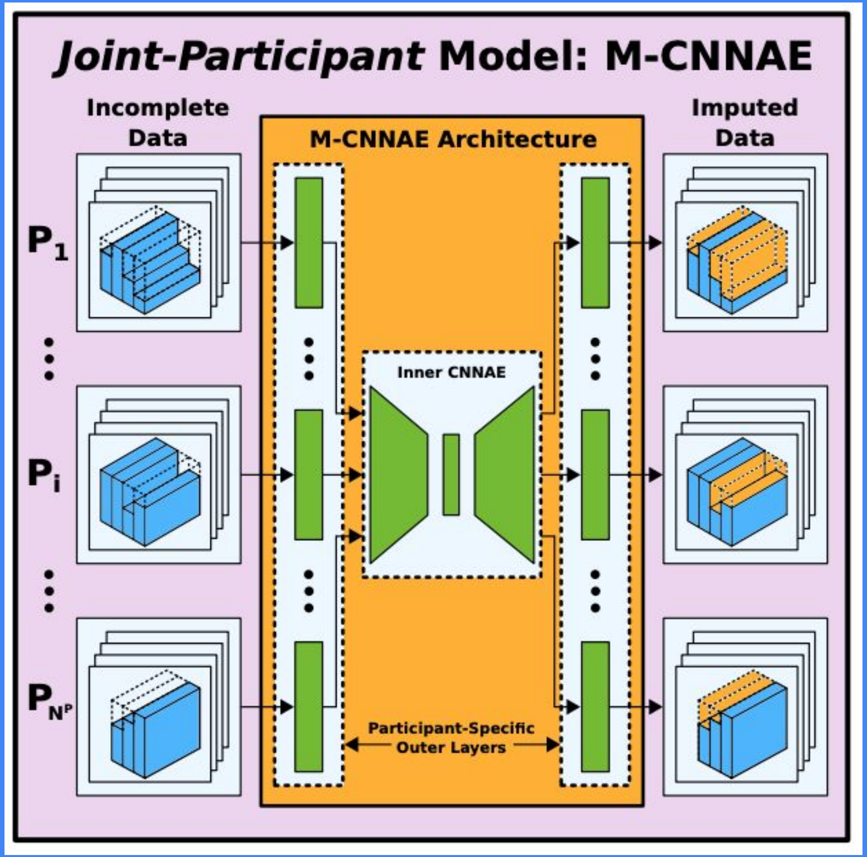

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Let's play a game called: ***How good is this representation!***

Jennifer Sun

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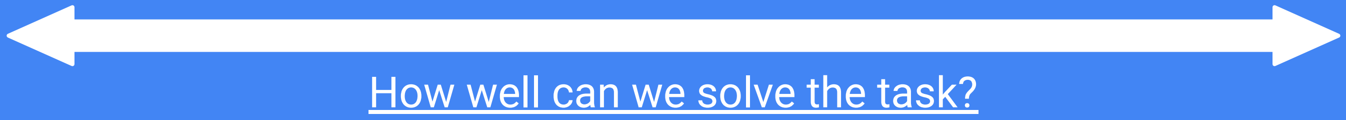

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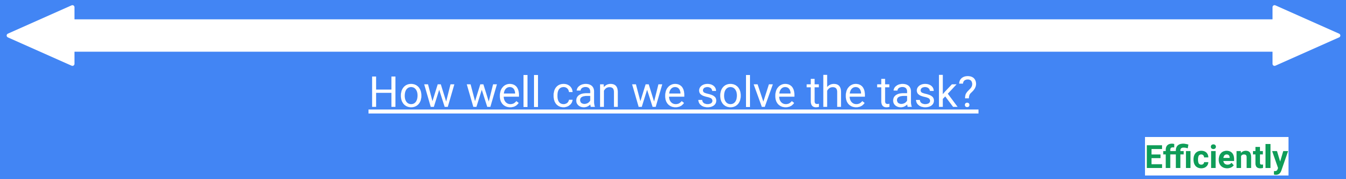

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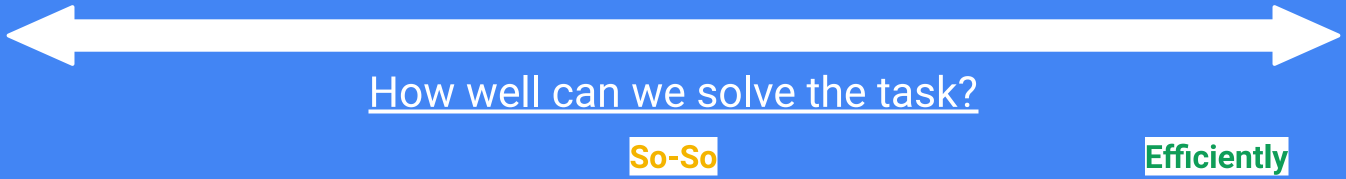

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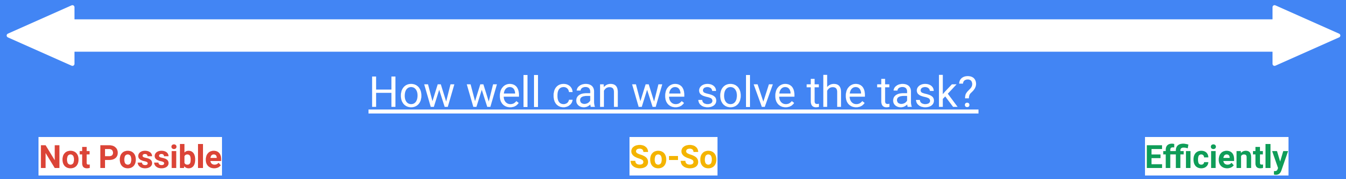

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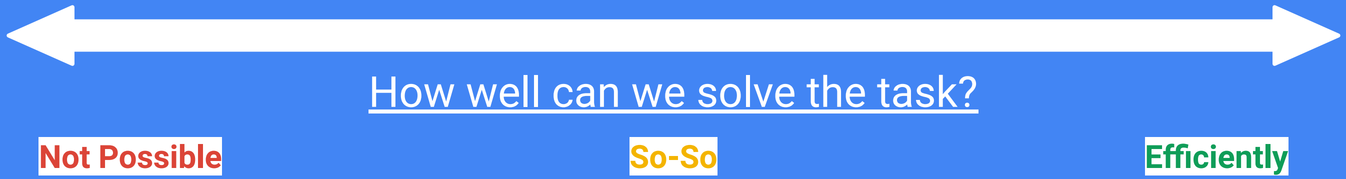

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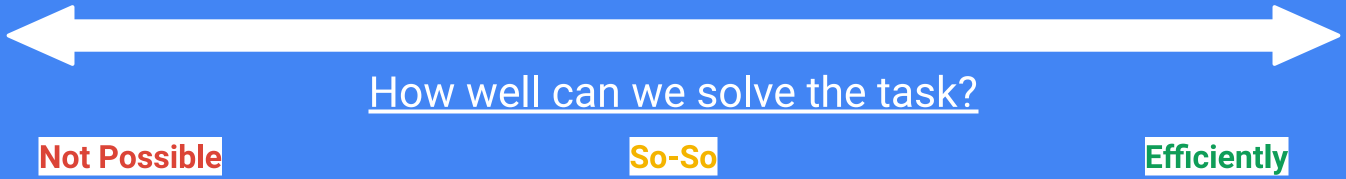

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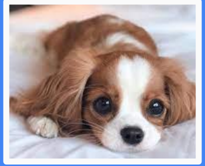

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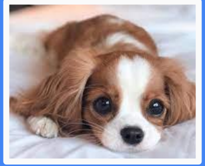

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In the end, we like this representation because it works for many tasks!
(and it’s cute 😍)

Jennifer Sun

Emphasize Modularity

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How would you implement modularity into your development pipeline?

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- Big & recent example: representations that once built can be used for many downstream tasks.

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- ***Exception*** in machine learning end-to-end modeling is all the rage! Allows the model to learn the data features to solve the task without intervention.

Ground Truth / Baselines / Reproducibility

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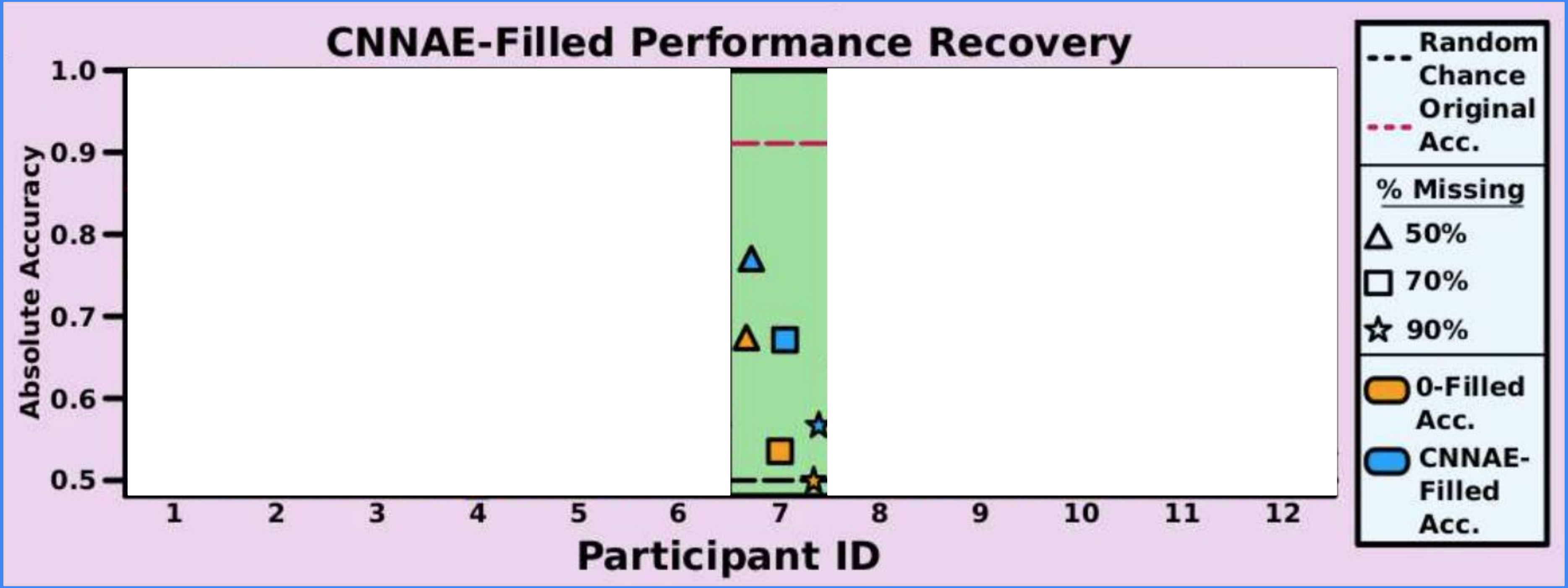

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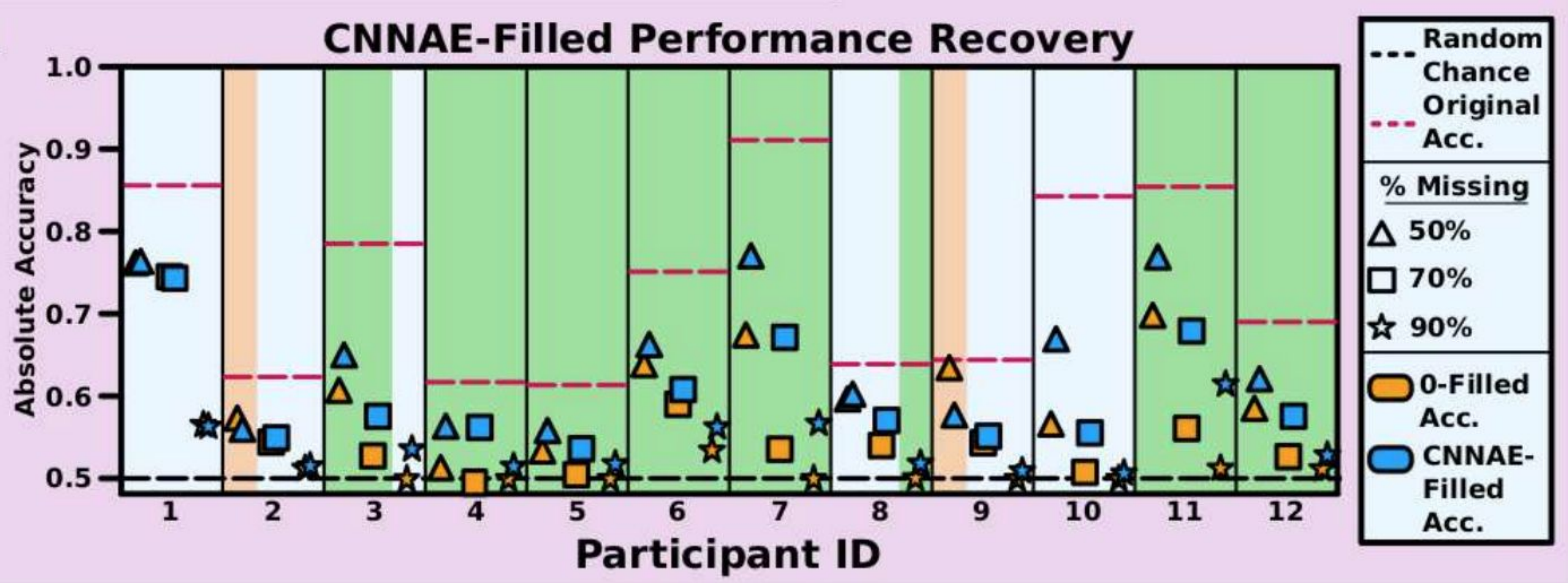

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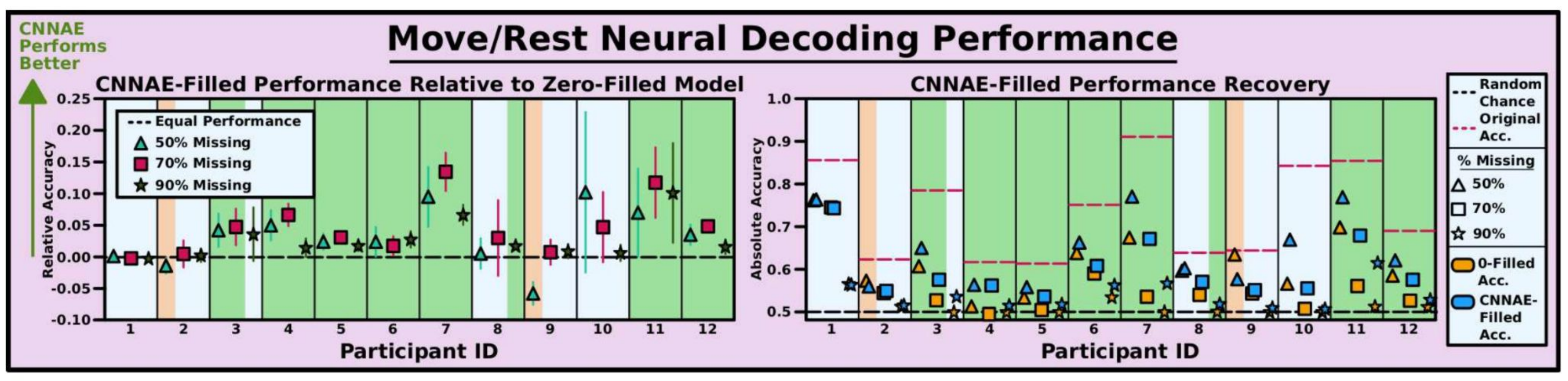

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