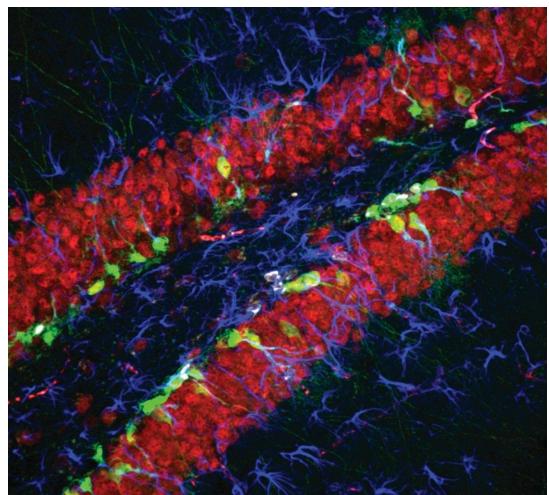


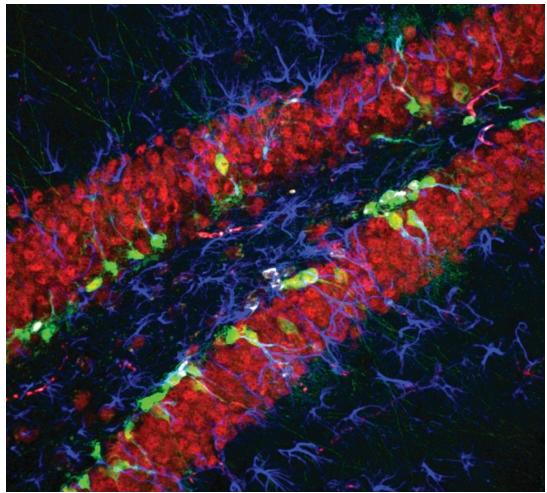
Presentation Skills

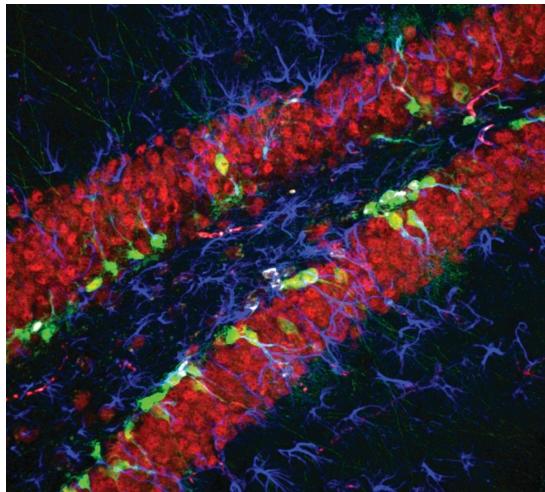
Alyssa Picchini Schaffer
isiCNI 2020
Muizenberg, South Africa

Review Process

Alyssa Picchini Schaffer
isiCNI 2020
Muizenberg, South Africa









Simons Collaboration on the Global Brain

**Why give
presentations?**

Constructing your Presentation

- Central Message

Constructing your Presentation

- Central Message
- Story Arc

Context

Context



Background

Context



Background



Motivation & Data

Context



Background



Motivation & Data



Conclusion

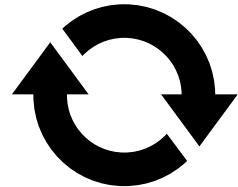
Context



Background



Motivation & Data



Conclusion

Ways to get it wrong

- Strictly Chronologically

Ways to get it wrong

- Strictly Chronologically
- No context or motivation

Constructing your slides

Constructing your slides

- Simple

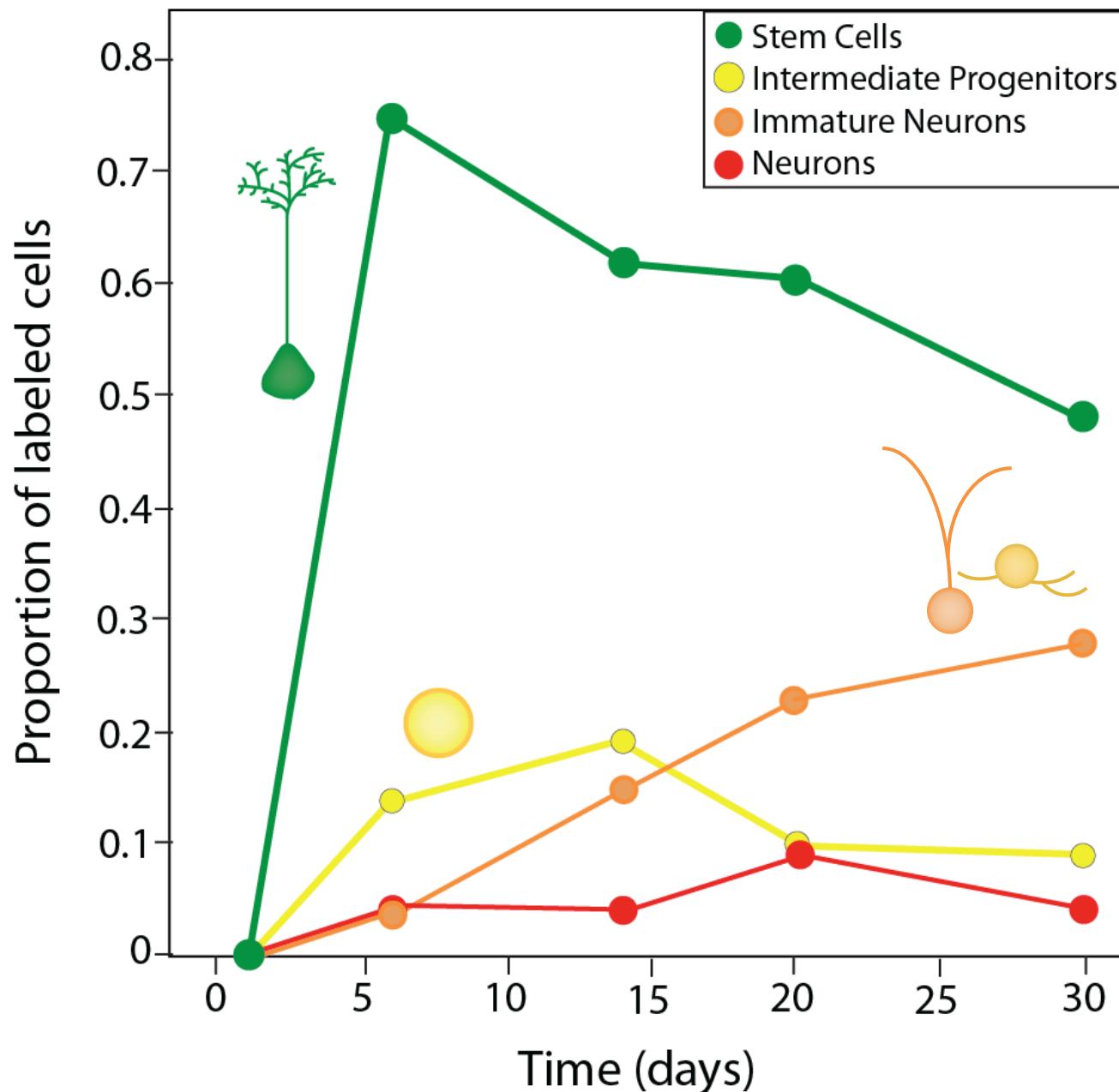
Constructing your slides

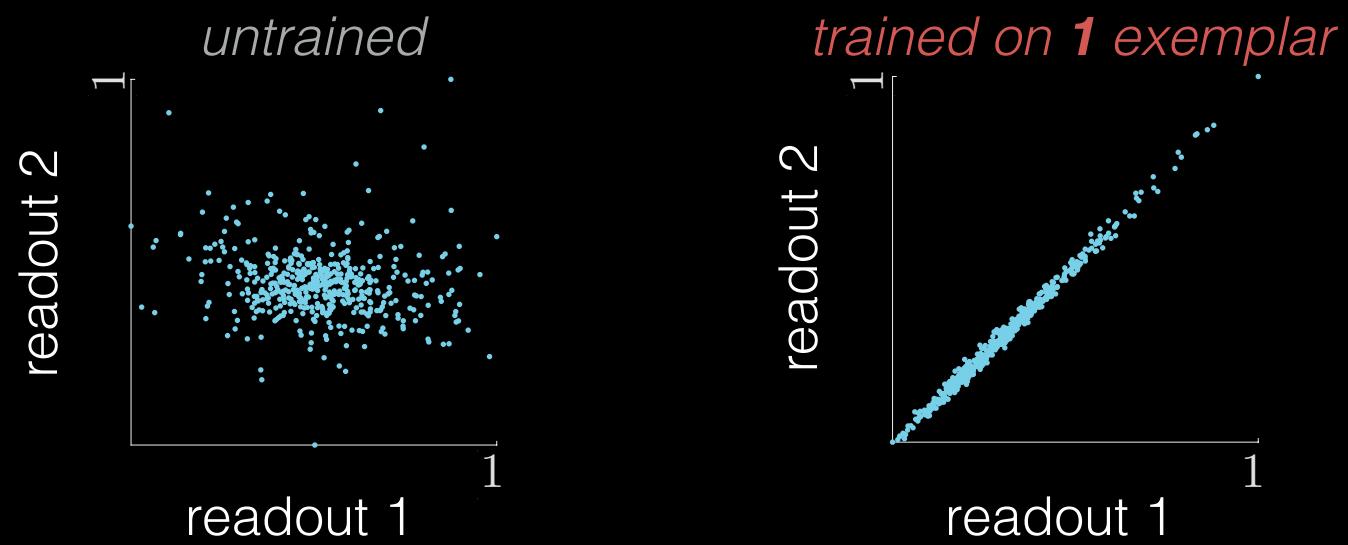
- Simple
- Speak to Everything

Constructing your slides

- Simple
- Speak to everything
- Visual appeal

Immature neurons are produced by stem cells



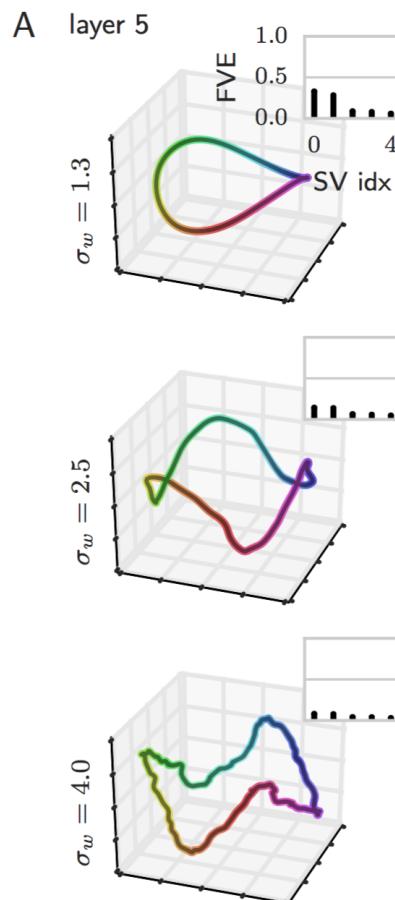


It is possible for readouts to agree
on what smells similar!

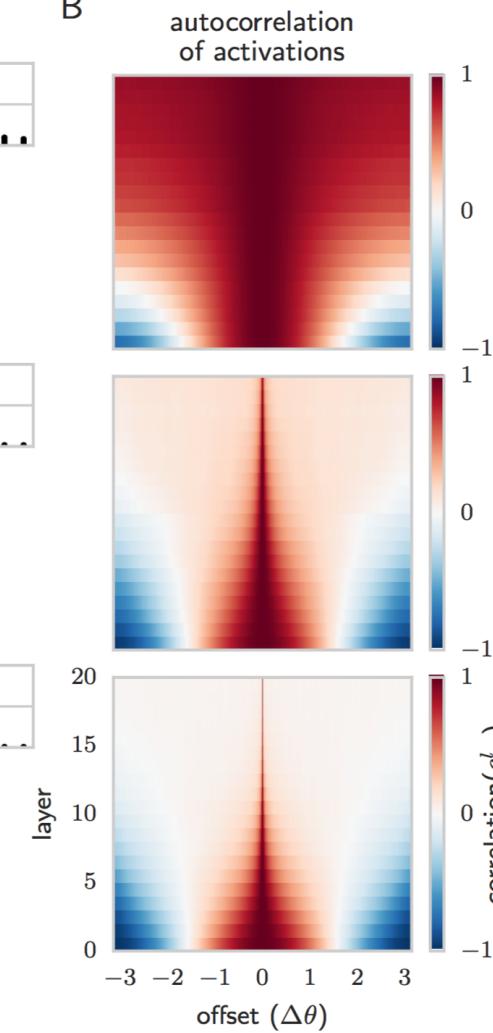
Propagation of a manifold through a deep network

$$\mathbf{h}^1(\theta) = \sqrt{N_1 q^*} [\mathbf{u}^0 \cos(\theta) + \mathbf{u}^1 \sin(\theta)]$$

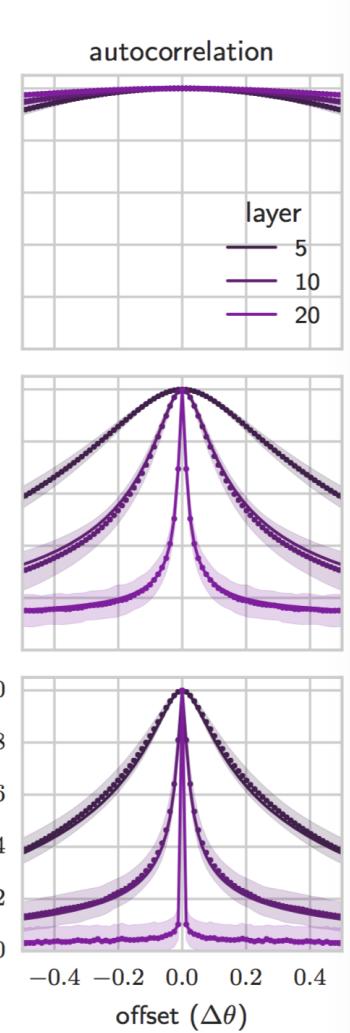
A great circle
input manifold



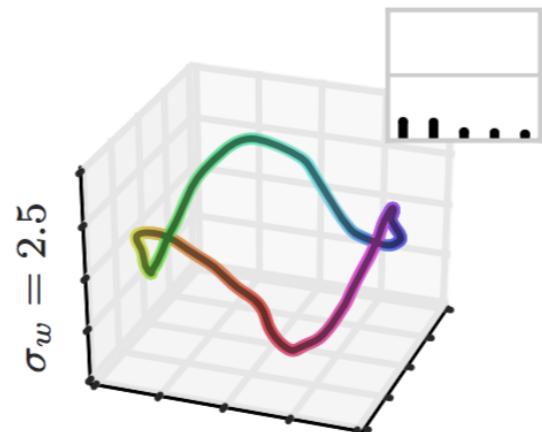
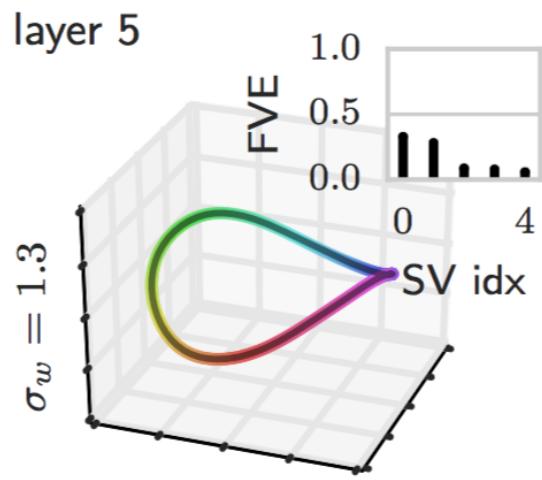
B



C



Manifold propagation depends on sigma



Theoretical questions

- What are the mathematical principles underlying the hierarchical self-organization of internal representations in the network?
- What are the relative roles of:
 - nonlinear input-output response
 - learning rule
 - input statistics (second order? higher order?)
- What is a mathematical definition of category coherence, and How does it relate the speed of category learning?
- Why are some properties learned more quickly than others?
- How can we explain changing patterns of inductive generalization over developmental time scales?

References

- Saxe, J. McClelland, S. Ganguli, Learning hierarchical category structure in deep neural networks, Cog Sci. 2013.
- Saxe, J. McClelland, S. Ganguli, Exact solutions to the nonlinear dynamics of learning in deep linear neural networks, ICLR 2014.
- Identifying and attacking the saddle point problem in high dimensional non-convex optimization, Yann Dauphin, Razvan Pascanu, Caglar Gulcehre, Kyunghyun Cho, Surya Ganguli, Yoshua Bengio, NIPS 2014.
- Modelling arbitrary probability distributions using non-equilibrium thermodynamics, J. Sohl-Dickstein, E. Weiss, N. Maheswaranathan, S. Ganguli, ICML 2015.
- Exponential expressivity in deep neural networks through transient chaos, B. Poole, S. Lahiri, M. Raghu, J. Sohl-Dickstein, S. Ganguli, under review, arxiv/1606.05340
- On the expressive power of deep neural networks, M. Raghu, B. Poole, J. Kleinberg, J. Sohl-Dickstein, S. Ganguli, under review, arxiv/1606.05336
- Deep Knowledge Tracing, C. Piech, J. Bassen, J. Huang, S. Ganguli, M. Sahami, L. Guibas, J. Sohl-Dickstein, NIPS 2015.

Moving to causal experiments...

1. Better detect and classify what the mouse is doing (Datta)
2. Cellular resolution activity measures (fast - Tetrodes - Uchida) and (genetically defined - GRIN lenses - Sabatini)
3. Richer models of relationships between activity, behavior, and explanatory latent variables (Linderman) (See poster)
4. Introduce features to the environment and experience (all of us)
5. New systems for closed loop perturbations to test models (Fast, spatiotemporally precise manipulations) (Datta/Sabatini)

Causal Experiments Needed

Causal Experiments Needed

- Quantitative description of behavior

Causal Experiments Needed

- Quantitative description of behavior
- Cellular resolution activity measures

Causal Experiments Needed

- Quantitative description of behavior
- Cellular resolution activity measures
- Better models

Causal Experiments Needed

- Quantitative description of behavior
- Cellular resolution activity measures
- Better models
- Environment and experience

Causal Experiments Needed

- Quantitative description of behavior
- Cellular resolution activity measures
- Better models
- Environment and experience
- Better technology

Delivering your talk

Delivering your talk

- Language

Delivering your talk

- Language
- Pace

Delivering your talk

- Language
- Pace
- Non-verbal Communication

PRACTICE!

Review Process

Review Process

- Triage

Review Process

- Triage
- Reviewers

Review Process

- Triage
- Reviewers
- Review meeting

Review Process

- Triage
- Reviewers
- Review meeting
- Funding line

Review Process

- Priorities

Review Process

- Priorities
- Program Officer

Review Process

- Priorities
- Program Officer
- Tailor each application

apschaffer@simonsfoundation.org

 **@Lyssa12**

Award Type	Deadline	Budget and Duration	Description
 <p>Bridge to Independence Award Program Annual</p>	<p>Open</p> <p>Application Deadline March 2, 2020</p>	<p>Over Three Years \$495,000</p>	<p>SFARI is invested in supporting the next generation of top autism researchers. The Bridge to Independence Award program engages talented early-career scientists in autism research by facilitating their transition to research independence and providing grant funding at the start of their professorships at a U.S. or Canadian research institution.</p> <p>Request for applications (RFA) open each year and are aimed at Ph.D. and M.D. -holding scientists who are currently in training positions but intend to seek tenure-track research faculty positions during the upcoming academic year. Fellows receive a commitment of \$495,000 over three years, activated upon assumption of a tenure-track professorship.</p>

Award Type	Status	Past Awards	Description
 2020 Research Award – Request for Applications Annual	Closed	See Funded Projects	<p>Grants awarded through this RFA are intended to provide support for the investigation of key unresolved research questions in autism, particularly those that connect etiology to brain function and behavior. SFARI welcomes risk and novelty in Research Award proposals, but potential impact on the autism research field will be the most important criterion. Competitive applications will have preliminary data or other relevant groundwork that justifies substantial investment on the proposed topic.</p> <p>The maximum budget is \$1,300,000, including indirect costs, over a period of up to four years.</p>