cosine
communication
signal processing
networking

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- Bayesian signal processing for complex systems
- Application: Bayesian parameter estimation of demographic rates for age-structured population models

State-Space Model

$$\mathbf{x}_t = f_t(\mathbf{x}_{t-1}, \boldsymbol{u}_t)$$

$$\mathbf{y}_t = g_t(\mathbf{x}_t, \boldsymbol{v}_t)$$

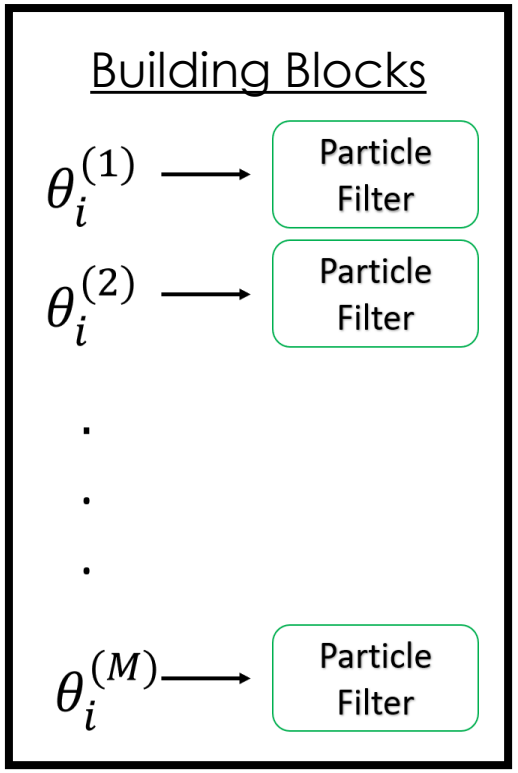
Learn the posterior distribution of latent states and model parameters

Adélie Penguin

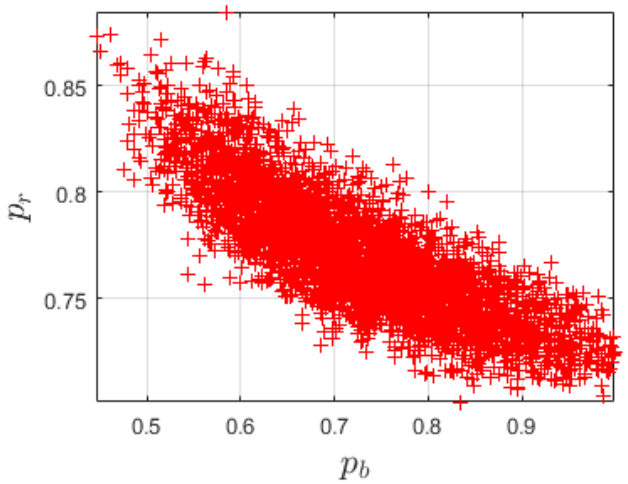
http://www.penguinmap.com/

# Why HPC?

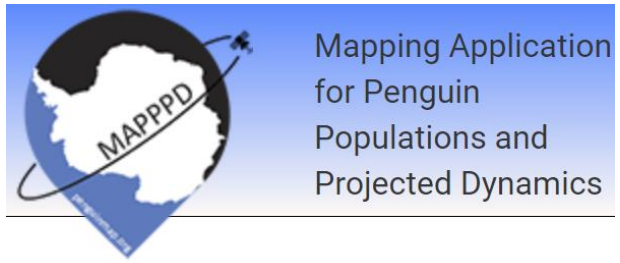
- Parallelizable algorithms
- Monte Carlo methods
- Lots of data (for a Bayesian)




"Embarrassingly" Parallel




Sampling methods!




# Goals for SDSC institute?

- Take advantage of parallelization
  - Python - Dask, Numba
- Scale methods for large datasets and complex models
- Become familiar with HPC concepts
- Meet some nice people ☺