# Next Steps

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# Machine Learning: What else to learn?

- Our course was heavy on model-free methods (i.e. no assumptions about $\mathcal{P}_{\mathcal{X} \times \mathcal{Y}}$.)
- Worth looking more into probabilistic approaches
  - graphical models, probabilistic learning and inference, probabilistic programming
  - books by David Barber and Kevin Murphy
- Learn more about neural networks
  - Neural networks for NLP (Yoav Goldberg's book)
  - Deep learning book (Goodfellow et al.)
  - Stanford's CS231n: Neural Networks for Vision (lecture on YouTube)

# Machine Learning: What else to learn?

1. Look at other course notes at this level.
   - Every course covers a different subset of topics.
   - Different perspectives. (e.g. Bayesian / Probabilistic)
2. Read on some "second semester" topics
   - Latent Dirichlet Allocation (LDA) / Topic Models
   - Sequence models: Hidden Markov Models / MEMMs / CRFs (Amanda Stent's NLP course in 2018)
   - Bayesian methods
   - Collaborative Filtering / Recommendations
   - Ranking
   - Bandit problems (Thompson sampling / UCB methods)
   - Gaussian processes