

# Lecture Notes for **Machine Learning in Python**



Professor Eric Larson  
**Wide and Deep Networks Deep Dive**

# Logistics and Agenda

- Logistics
  - Wide/Deep due soon!
  - late turn in... ?
- Agenda
  - Wide/Deep Finish Demo and Town Hall
  - Basic CNN architectures and Demo

# Class Overview, by topic

Table Data  
Visualization

Numpy, Pandas, Seaborn  
Overviews with some in-depth discussion

Dimension  
Reduction and  
Image Processing

Scikit-learn, Scikit Image,  
Intuition only, Some mathematics

Linear and  
Logistic  
Regression

Numpy, Recreate API for Scikit-learn  
Detailed mathematics for simple optimization  
intuition for advanced optimization

Neural Networks  
and Back Prop.

Numpy  
Detailed mathematics for NN operations

Wide and Deep  
Networks

Convolutional  
Networks

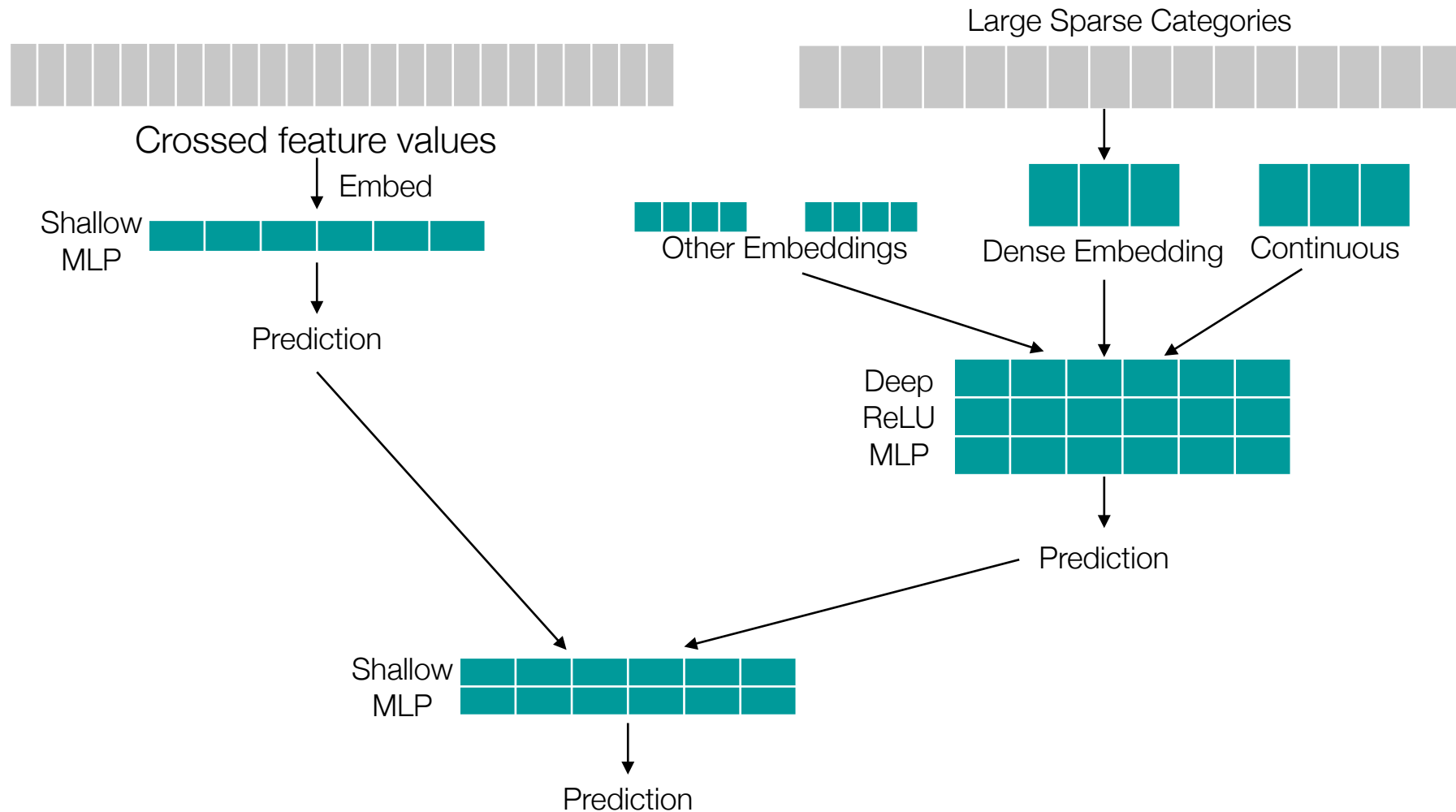
Recurrent  
Networks

Keras, Tensorflow  
Intuition, Detailed implement.

Ethics in  
Language Models

ConceptNet  
Case studies

# Last Time:



The Adult Dataset:  
Toy Census Data Example

Other tutorials:

[https://www.tensorflow.org/tutorials/wide\\_and\\_deep](https://www.tensorflow.org/tutorials/wide_and_deep)



10a. Keras Wide and Deep as TFData.ipynb

# Town Hall, Wide and Deep Networks



WHEN VISITING A NEW HOUSE, IT'S  
GOOD TO CHECK WHETHER THEY HAVE  
AN ALWAYS-ON DEVICE TRANSMITTING  
YOUR CONVERSATIONS SOMEWHERE.