By Chance Emanuels

AI Research :AI Distinguished Lecture Series

Anaconda Install:

1. **Anaconda Python/R Distribution - Free Download**
2. **Matplotlib**
3. **Scikit Learn**
4. **TensorFlow**
5. **Opencv**
6. **Santanu Pattanayak - Pro Deep Learning with TensorFlow. A Mathematical Approach to Advanced Artificial Intelligence in Python-Apress (2017).pdf**
7. **Deep Learning for NLP: An Overview of Recent Trends**
8. **Rick Roche (R^2) - CAIA**

Ethics:

1. **Is the Federal Government Ready for AI?**
2. **faception = stereotyping**
3. **States Battle Big Tech Over Data Privacy Laws**
4. **Attacking Machine Learning with Adversarial Examples**
5. **Adversarial AI**
6. **AI Safety — How Do you Prevent Adversarial Attacks?**
7. **Adversarial Machine Learning at Scale**
8. **Using Deep Learning at Scale in Twitter's Timelines**
9. **https://wise-intern.org/**
10. **Herjavec group**

Applications:

1. **MIMS Final Projects: 2018**
2. **Skindex**
3. **Artificial Intelligence in Society**
4. **Teaching - CS 221**
5. **http://www.it.uu.se/edu/course/homepage/sml/lectures/**

6. https://arxiv.org/abs/1905.08233?fbclid=IwAR2A7NbRZv_ugHgLi7FqCSRcNeFLa1CFpQjrV7Bpm55v81Uroafqpthlu1E
7. https://selfdrivingcars.mit.edu/
8. Revealing True Emotions Through Micro-Expressions: A Machine Learning Approach
9. http://josh-tobin.com/assets/pdf/randomization_and_the_reality_gap.pdf
10. Artificial Intelligence (AI) in Construction Market to Reach USD 4.51 Billion By 2026 | Reports And Data

Mathematics:

1. Mathematics for Machine Learning
2. Foundations of Data Science
3. Topics in Mathematics of Data Science Lecture Notes
4. Mathematics for Machine Learning
5. http://www.holehouse.org/mlclass/?fbclid=IwAR1XmS0CtIXUDg0s2bxeTUpiv2Dh08L_DaDQqA2HCXqafUFfcWays6S07UI
6. Understanding Machine Learning: From Theory to Algorithms
7. Foundations of Machine Learning
8. Machine Learning Notation
9. Class Notes CS229 Course Machine Learning Standford University Topics Covered:
10. Concise Machine Learning
11. 6/23/19 DNN Training ISCA 2019 1
12. Topics in Mathematics of Data Science Lecture Notes
13. A Beginner's Guide to the Mathematics of Neural Networks
14. STATS 101 – Brandon Foltz – Learner, Teacher, and Instructional Designer
15. Linear Algebra
16. Introduction to Applied Linear Algebra – Vectors, Matrices, and Least Squares
17. Harvard

Tensorflow Updates:

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1. Tensorflow 2.0 -- Everything you need to know
2. tensorflow/SECURITY.md at master · tensorflow/tensorflow
3. https://github.com/tensorflow/tensorflow/blob/master/tensorflow/security/index.md
4. https://colab.research.google.com/github/tensorflow/docs/blob/master/site/en/tutorials/quickstart/advanced.ipynb#scrollTo=rX8mhOLljYeM
5. https://www.tensorflow.org/learn
6. TensorFlow — low and high level API - Łukasz Lipiński
7. TensorFlow 2 quickstart for experts

Saving and Loading Models:

a. Save and load models
b. Save and serialize models with Keras

Data

a. **Python:**
   i. Data Cleaning With Pandas and Numpy
   ii. Python Machine Learning
   iii. Durham University (Introduction to Programming in Python)
   iv. Python Code for AI: Foundations of Computational Agents
   v. Find n-smallest and n-largest values from DataFrame for a particular Column in Pandas
   vi. Integrate Google Sheets and Jupyter Notebooks
   vii. ValueError: x and y must be the same size
   viii. Ordering Permutation
   ix. Matplotlib scatterplot - Python Tutorial
   x. gmaps Documentation
   xi. Python Data Science Handbook | Python Data Science Handbook
   xii. Data Mining
   xiii. Big Data

xiv. machinelearningmindset/machine-learning-course: Machine Learning Course with Python. Refer to the course page for step-by-step explanations.
xv. Python Machine Learning Projects
xvi. https://web.stanford.edu/~hastie/CASI_files/PDF/casi.pdf?fbclid=IwAR24qS1Zo-J3rA_Pt-LdfuDiZMxwyWqHgcr50SlfFPiC5hPwROysTwD6vgQ

Data

1. TensorFlow Datasets

Simple House Price Predictor:

xvii. Housing Predictor
xviii. house-prices-advanced-regression-techniques

b. Convolutional Neural Networks:

i. mnist
ii. Active Learning on MNIST — Saving on Labeling
iii. Federated Learning for Image Classification
iv. Image classification with Tensorflow 2.0.0
v. Confusion Matrix
vi. Confusion matrix — scikit-learn 0.22 documentation
vii. tf.math.confusion_matrix
viii. Introduction to Machine Learning Course
ix. CNN Stanford

c. Financial Data (StockMarket)(Stochastic environment (not possible to predict):

i. How to Encode Financial Market Data for Machine Learning Time Series
ii. Multi-step Time Series Forecasting with Long Short-Term Memory Networks in Python
iii. Pedro Domingos Will Lead New DE Shaw Machine Learning Group
iv. DE Shaw: inside Manhattan's 'Silicon Valley' hedge fund

v. [DE Shaw taps academic to set up new machine learning group]

d. **PDF scraping and data acquisition**
   i. [https://towardsdatascience.com/python-for-pdf-efofac2808b0]
   ii. [CROSSTAB Monthly Harvard-Harris Poll: April 2019]
   iii. [2011 Census Infographics]
   iv. [GIS Data - Data and Tools]
e. **Pareto-Optimal Next-Generation**
   i. [https://arxiv.org/pdf/1902.01946.pdf]
f. **Google Projects:**
   i. [Predicting Bus Delays with Machine Learning]
   ii. [ML Crash Course Google]
g. **Twitter:**
   i. [Twitter Cortex]
   ii.

2. **TF1 to TF2.0**
   a. [Migrate your TensorFlow 1 code to TensorFlow 2]
   b. [Automatically upgrade code to TensorFlow 2]
   c. [https://github.com/tensorflow/federated/blob/v0.10.1/docs/install.md]
   d. **Keras:**
      i. [https://www.tensorflow.org/guide/keras#model_subclassing]
      ii. [https://keras.io/models/about-keras-models/]
      iii. [https://www.tensorflow.org/guide/keras/save_and_serialize]
      iv. [https://www.tensorflow.org/guide/keras/rnn]
      v. [https://www.tensorflow.org/guide/keras/custom_layers_and_models]
      vi. [Eager Execution]

vii. Graphics
viii. https://www.tensorflow.org/graphics/overview

3. **Reinforcement Learning:**
   a. Implementing Chained Methods with Inheritance
   b. CS 285
   c. Reinforcement Learning : Markov-Decision Process (Part 1)
   d. Solving CartPole-V1 - Siddharth Kale
   e. Lets go fast (Linux Required)
      i. https://gym.openai.com/docs/
      ii. https://gym.openai.com/envs/#box2d
      iii. http://www.cs.cmu.edu/~./awm/tutorials/rl06.pdf
      iv. http://www.cs.cmu.edu/~./awm/tutorials/rl.html
      v. http://www.cs.cmu.edu/~awm/rlsim/
      vi. https://gym.openai.com/docs/#installation
      vii. AI Distinguished Lecture Series
      viii. https://botmart.co/
      ix. https://developers.google.com/community/experts/?update_high_contrast=true&authuser=0
      x. Deep Reinforcement Learning
      xi. https://www.microsoft.com/en-us/research/group/reinforcement-learning-group/#!opportunities
      xii. Provably efficient reinforcement learning with rich observations
      xiii. [1911.05815] Kinematic State Abstraction and Provably Efficient Rich-Observation Reinforcement Learning
      xiv. Reinforcement learning for the real world with Dr. John Langford and Rafah Hosn
      xv. Self-Supervised Learning (By Andrew Zisserman)
      xvi. CHECKOUT FIRST
      xvii. Lectures
      xviii. Matlab Unsupervised Learning

xix. CS 285

Deep Learning

1. Luminovo
2. https://fleuret.org/ee559-2018/dlc/#materials
3. https://course.fast.ai/part2?fbclid=IwAR0s30PbQJAl69a9KEFRdDtTZ4Yye_APt3yjFHCnaaoU27buvWZQpjFRmjA
4. Computer Vision
5. https://cedar.buffalo.edu/~srihari/CSE676/index.html?fbclid=IwAR2TbQAIQbpKAbhAjQHrzr523w5mJU3gBMSn78yf-SkomjrPJc41px5JtUk
6. https://d2l.ai/d2l-en.pdf
7. http://www0.cs.ucl.ac.uk/staff/d.silver/web/Teaching.html
8. CHECKOUT FIRST
9. A Hands-On Introduction to Deep Q-Learning using OpenAI Gym in Python

Videos:

1. Cornell Machine Learning Intelligent Systems
2. http://cs230.stanford.edu/lecture/
3. CS234: Reinforcement Learning | Winter 2019
4. https://www.youtube.com/playlist?list=PLdAoL1zKcqTXFJniO3Tqqn6xMBBL07EDc
5. [Coursera] Neural Networks for Machine Learning — Geoffrey Hinton 2016
6. Neural networks class - Université de Sherbrooke
7. DLAI - Deep Learning for Artificial Intelligence @ UPC Barcelona
8. Statistical Learning- Classification | Data Analytics

Additional Courses:

1. https://software.intel.com/en-us/ai/courses
2. Coursera
3. https://academy.infinite.red/p/ai-demystified-free-5-day-mini-course
4. https://www.khanacademy.org/math/statistics-probability

5. https://www.edx.org/course/introduction-to-probability
6. Introduction to Probability and Data
7. Data Science Essentials
8. Learning From Data - Online Course (MOOC)

Microsoft

1. Build a Predictive Maintenance Solution using Deep Learning
2. Learning Path - AI Developer Bootcamp
3. Learning Path - ML Crash Course
4. Learning Path - AI Developer Bootcamp

Entrepreneurship

5. https://entrepreneurship.brown.edu/about/people/howard-anderson/
6. https://entrepreneurship.brown.edu/