ENEL 645 - Winter 2021

Overview of the course

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UNIVERSITY OF CALGARY

Instructor and TAs

Instructor:

- Roberto Souza – roberto.medeirosdeso@ucalgary.ca

TAs:

- Abbas Mahbod – abbas.mahbod1@ucalgary.ca
- Kashyap Patel – kashyap.patel@ucalgary.ca
- Omid Owjimehr – omid.owjimehr@ucalgary.ca

- Please avoid contacting the instructor and TAs directly by email unless it is an issue specific to a single student or to a project team.

Course Delivery

- Asynchronous – video lectures and tutorials released weekly
- Four 1-hour office hours spread throughout each week
  - Two office hours led by the TAs (Dates and times TBD)
  - Two office hours led by the instructor (Wednesdays 9 pm and Fridays 9 am)
  - We will do our best to accommodate students in different time zones

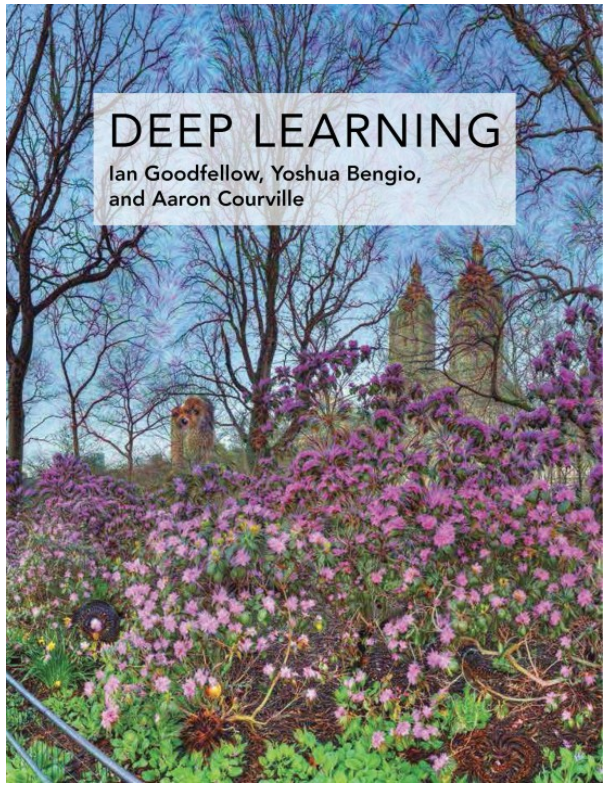
- It is a large class, but **don't be a stranger! Come to the office hours with your questions.**

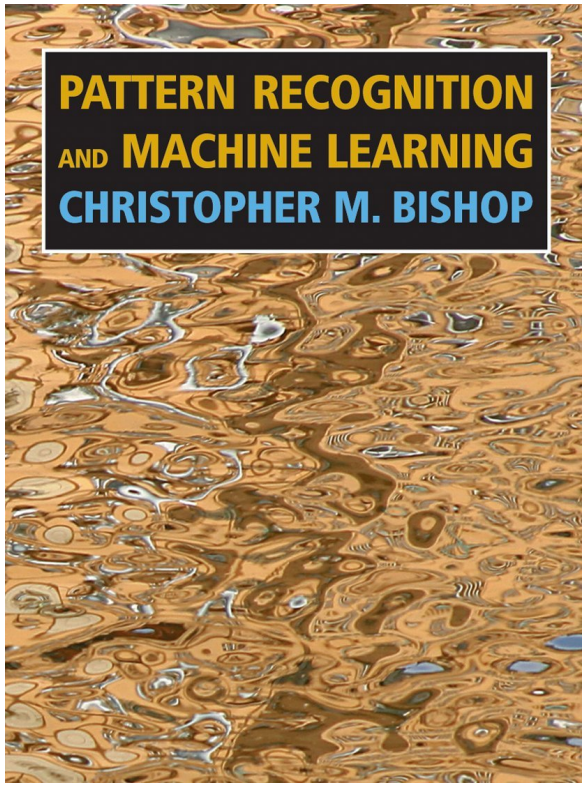
Disclaimer

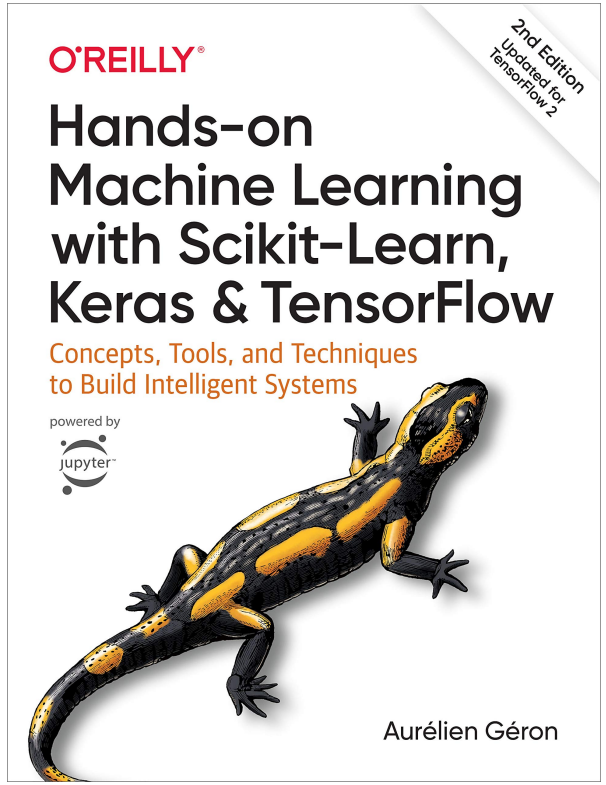
If a student turns on their microphone or camera or uses the public chat feature, this constitutes consent for the student's video image or sound audio to be uploaded with the office hour or tutorial on university approved platforms such as D2L. If the student wishes to ensure that their questions/faces/voices are not recorded in the video, they should instead use private chat to ask questions.

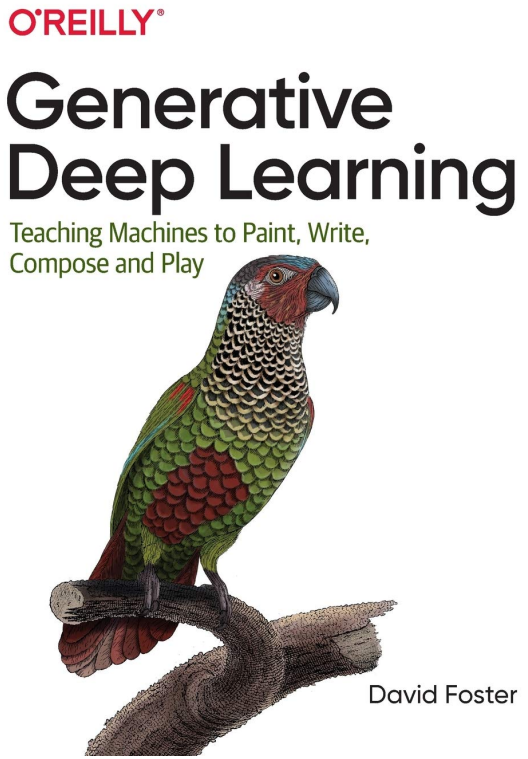
Textbook

- No mandatory textbook for this course









Course Assessment

- 5 quizzes – 4 quizzes with highest marks are kept (20%)
- 5 team assignments - 4 assignments with highest marks are kept (20%)
  - Maximum team size: 5 (please try your best to form teams of five, it is a large class!)
- Team Project (same teams as the ones used for the assignments)
  - Project proposal (10%)
  - Midterm project report and presentation (10% + 10%)
  - Final project report (“publication”) and presentation (15% + 15%)

- More details about the grading system can be found in the course outline (D2L overview section)
- Rubrics will be made available soon

The Programming Environment (Part 1)

https://colab.research.google.com/

https://jupyter.org/

https://github.com/rmsouza01/ENEL645

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Research Computing Services

https://rcs.ucalgary.ca/index.php/RCS_Home_Page

The Programming Environment (Part 2)

- Python 3
- Python libraries:
  - NumPy
  - SciPy
  - Matplotlib
  - Scikit-learn
  - Scikit-image
  - Pandas
  - Tensorflow (version ≥ 2.0)

- Please have your programming environment in your computer or on Google Colab set up asap

Deep Learning Framework

Course Syllabus

- Python Bootcamp and machine learning concepts
- Fully connected neural networks
- Convolutional neural networks and model fine-tuning
- Fully convolutional neural networks
- Recurrent neural networks
- Generative adversarial networks
- Self-supervised learning
- Recent trends in deep learning

Learning Goals

- To understand the basic concepts and definitions of machine learning
- Design and develop machine learning solutions for relevant problems
- Have a comprehensive overview of current trends in deep learning
- To get familiarity with different Deep Learning algorithms and in which situations to deploy them
- Acquire hands-on experience with deep learning programming frameworks (e.g., TensorFlow)

Calibration Survey

- Please complete the following survey:

https://forms.gle/j1YNLiCMui2ECLGH6

- It takes less than a minute to do it!

See you soon! I hope you enjoy the class ☺