

# Want to make progress in learning AI? Don't know where to start?

## Here are recommendations from the Institute for AI R&D of Serbia

**Note: The Institute is not responsible for the content of the recommended books and lectures and does not benefit from their use in any way. We share these recommendations for your benefit only.**

Here are our recommendations for free online lectures, classes, and other resources, sorted by required background and experience. These recommendations are given for the following broad groups (note: STEM = Science, Technology, Engineering, and Math):

1. Business leaders, journalists, and the general public
2. Graduate students and researchers in non-STEM fields, college students in STEM fields, and advanced high school students
3. Practicing engineers, researchers in STEM fields, graduate students in STEM fields, and advanced college students in STEM fields

If your background is not listed in the above groups, think of which listed group has the most similar background to you and begin with recommendations for that group. Everybody's backgrounds and interests are different, so treat our recommendations as just that – recommendations. In the end you will find your own way to learning more!

Please stay tuned for updates and email your recommendations to [branislav.kisacanin@ivi.ac.rs](mailto:branislav.kisacanin@ivi.ac.rs)

### Recommendations for Group 1

For our first group (business leaders, journalists, and the general public), we recommend the following lectures and short classes. They are high level, offer broad coverage, and are presented in a popular style:

- Branislav Kisačanin, SRV Podcast (in Serbian): *Veštačka inteligencija*, [link](#) (1 hr to complete)
- Andrew Ng, TED Talk: *How AI Could Empower Any Business*, [link](#) (15 min to complete)
- Google Cloud Team, The 7 Steps of Machine Learning, [link](#) (11 min to complete)
- Google TensorFlow Team, *Machine Learning Zero to Hero*, [link](#) (35 min to complete)
- Andrew Ng, Coursera Class: *AI for Everyone*, [link](#) (9 hrs to complete)

## Recommendations for Group 2

The following are our suggestions for the second group (graduate students and researchers in non-STEM fields, college students in STEM fields, and advanced high school students).

The following classes by Prof. Ng constitute the [Coursera Machine Learning Specialization](#). Here are the free video recordings of these classes on YouTube:

- Andrew Ng, *Supervised Machine Learning: Regression and Classification*, [link](#)
- Andrew Ng, *Advanced Learning Algorithms*, [link](#)
- Andrew Ng, *Unsupervised Learning, Recommenders, Reinforcement Learning*, [link](#)

For a nominal fee (around 50 euros), you can [register for these classes on Coursera](#) and earn a certificate by doing exercises and homework assignments.

Another highly recommended class for our second group is the [CS231n class from Stanford](#). It talks about AI for computer vision and broader, has great illustrations of basic concepts, and offers programming exercises that can be done on freely available computers on [Google Colab](#). The video recordings of the lectures are available here:

- Stanford CS231n: Deep Learning for Computer Vision, 2017 lectures on Youtube: [link](#)
  - 2022 homework assignments, slides, and Google Colab instructions are available [here](#)

In the following webinar, Prof. Ng talks about careers in Machine Learning:

- Andrew Ng, ACM Webinar: *Building a Career in Machine Learning*, [link](#) (1 hr to complete)

The following are “getting started” videos about Python, TensorFlow, Keras, and TensorFlow Lite, after watching them, you can search YouTube for more related lectures and entire classes on these topics:

- Python for Beginners - Learn Python in 1 Hour: [link](#)
- Python Tutorial - Full Course for Beginners: [link](#)
- Getting Started with TensorFlow: [link](#)
- Getting Started with Keras (high-level API for TensorFlow): [link](#)
- Getting Started with TensorFlow Lite: [link](#)
- TensorFlow Lite on Android: [link](#)
- TensorFlow Lite on Raspberry Pie: [link](#)

Finally, here are two books, both free downloads:

- Deisenroth, Faisal, Ong, [Mathematics for Machine Learning](#)
- Goodfellow, Bengio, Courville, [Deep Learning](#)

If you feel this was not enough for how far you want to go in learning AI, please continue to recommendations for group 3.

## Recommendations for Group 3

For our third group (practising engineers, researchers in STEM fields, graduate students in STEM fields, and advanced college students in STEM fields), our recommendations are given below. They fall into several categories:

- Continuation of Coursera's Machine Learning Specialization to their Deep Learning Specialization
- Serious classes on mathematical foundations of Deep Learning and classes on application areas of AI
- YouTube channels and other places that follow and explain the latest developments

The following classes by Prof. Ng form the [Coursera Deep Learning Specialization](#). Here are the free video recordings of these classes on YouTube:

- Andrew Ng, *Neural Networks and Deep Learning*, [link](#)
- Andrew Ng, *Improving DNNs: Hyperparameter Tuning, Regularization and Optimization*, [link](#)
- Andrew Ng, *Structuring Machine Learning Projects*, [link](#)
- Andrew Ng, *Convolutional Neural Networks*, [link](#)

For a nominal fee (around 50 euros), you can [register for these classes on Coursera](#) and earn a certificate by doing exercises and homework assignments.

The following three classes are a “must” for anyone serious about Machine Learning::

- Gilbert Strang, *Linear Algebra* (MIT 18.06), [link](#) (legendary MIT professor)
- William H. Press, *Opinionated Lessons in Statistics* (UT Austin), [link](#) (Prof.Press is one of the authors of the famous *Numerical Recipes in C*)
- Stephen Boyd, *Convex Optimization* (Stanford), [link](#) (Prof.Boyd is well know for his optimization libraries)

More classes:

- Optimization Methods for Machine Learning and Engineering (KIT), [link](#)
- Introduction to Algorithms (MIT 6.006), [link](#)
- Statistical Learning (Stanford Online), [link](#)
- NLP with Deep Learning (Stanford CS224N), [link](#)
- Transformers United (Stanford CS25), [link](#)
- ML in Finance (U Leipzig), [link](#)

Podcasts and sites following the latest developments (videos, papers, code, competitions):

- Lex Friedman Podcast, [link](#)
- Two Minute Papers with Karoly Zsolnai-Feher, [link](#)
- Papers with Code, [link](#)
- Kaggle, [link](#)
- MarkTechPost, [link](#)