

# AI Current Research

MS548

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## AI Samples

1. Boundless colab : TENSORFLOW HUB. (n.d.). Retrieved March 25, 2021, from <https://www.tensorflow.org/hub/tutorials/boundless>  
*Program to extrapolate incomplete images.*
2. Basic text classification. (n.d.). Retrieved March 25, 2021, from [https://www.tensorflow.org/tutorials/keras/text\\_classification](https://www.tensorflow.org/tutorials/keras/text_classification)  
*Program to perform sentiment analysis on movie reviews.*
3. Code Bullet. (2018, April 29). Ai learns to play google chrome dinosaur game | | can you beat it?? Retrieved March 25, 2021, from [https://www.youtube.com/watch?v=sB\\_IGstiWlc&ab\\_channel=CodeBullet](https://www.youtube.com/watch?v=sB_IGstiWlc&ab_channel=CodeBullet)  
*Genetic algorithm to get the maximum score in an infinite runner.*
4. Computer Science. (2019, August 07). Email spam detection using python & machine learning. Retrieved March 25, 2021, from [https://www.youtube.com/watch?v=cNLPt02RwF0&ab\\_channel=ComputerScience](https://www.youtube.com/watch?v=cNLPt02RwF0&ab_channel=ComputerScience)  
*Determine if a given piece of text is a spam email.*
5. Computer Science. (2020, February 03). Twitter sentiment analysis using python. Retrieved March 25, 2021, from [https://www.youtube.com/watch?v=ujld4ipkBio&ab\\_channel=ComputerScience](https://www.youtube.com/watch?v=ujld4ipkBio&ab_channel=ComputerScience)  
*Program to perform sentiment analysis on Twitter tweets.*
6. Fast style transfer for arbitrary styles : TENSORFLOW HUB. (n.d.). Retrieved March 25, 2021, from [https://www.tensorflow.org/hub/tutorials/tf2\\_arbitrary\\_image\\_stylization](https://www.tensorflow.org/hub/tutorials/tf2_arbitrary_image_stylization)  
*Program to apply given a given art style to another piece of art.*
7. Khanrad. (2019, August 26). Predict housing prices using linear regression | learn keras #2. Retrieved March 25, 2021, from [https://www.youtube.com/watch?v=Mcs2x5-7bc0&ab\\_channel=Khanrad](https://www.youtube.com/watch?v=Mcs2x5-7bc0&ab_channel=Khanrad)  
*Predict housing prices based on square footage.*
8. Kharwal, A. (2020, December 22). Object detection with python. Retrieved March 25, 2021, from <https://thecleverprogrammer.com/2020/12/22/object-detection-with-python/>  
*Detect trained object types within a given image.*
9. Kharwal, A. (2020, December 24). Number plate detection with python. Retrieved March 25, 2021, from <https://thecleverprogrammer.com/2020/12/24/number-plate-detection-with->

[python/](#)

*Detect license plate dimensions within a given image.*

10. Kharwal, A. (2020, December 25). Named entity recognition with python. Retrieved March 25, 2021, from <https://thecleverprogrammer.com/2020/12/25/named-entity-recognition-with-python/>

*Detecting named entities and their categories within a body of text.*

11. Kharwal, A. (2020, December 27). Real-time face mask detection with python. Retrieved March 25, 2021, from <https://thecleverprogrammer.com/2020/12/27/real-time-face-mask-detection-with-python/>

*Detect if a subject is wearing a mask in a given image.*

12. Kharwal, A. (2020, November 18). Restaurant recommendation system with Python. Retrieved March 25, 2021, from <https://thecleverprogrammer.com/2020/11/18/restaurant-recommendation-system-with-python/>

*Generate recommendation of restaurants based on historical data.*

13. NeuralNine. (2020, February 12). Python machine learning tutorial #8 - handwritten digit recognition with tensorflow. Retrieved March 25, 2021, from [https://www.youtube.com/watch?v=Zi4i7Q0zrBs&ab\\_channel=NeuralNine](https://www.youtube.com/watch?v=Zi4i7Q0zrBs&ab_channel=NeuralNine)

*Train an AI to accurately detect written characters.*

14. NeuralNine. (2020, February 22). Generating poetic texts with recurrent neural networks in python. Retrieved March 25, 2021, from [https://www.youtube.com/watch?v=QM5XDc4NQJo&list=PL7yh-TELLS1G9mmnBN3ZSY8hYgJ5kBOg-&ab\\_channel=NeuralNine](https://www.youtube.com/watch?v=QM5XDc4NQJo&list=PL7yh-TELLS1G9mmnBN3ZSY8hYgJ5kBOg-&ab_channel=NeuralNine)

*Train a neural network to generate new poetry based on source input.*

15. Programming Hero. (2020, December 07). Don't buy alexa! build your own. create a virtual assistant with python | python project | jarvis ai. Retrieved March 25, 2021, from [https://www.youtube.com/watch?v=AWvsXxDtEkU&ab\\_channel=ProgrammingHero](https://www.youtube.com/watch?v=AWvsXxDtEkU&ab_channel=ProgrammingHero)

*Use speech recognition libraries to build a simple voice assistant.*

16. Randerson112358. (2021, February 12). Stock price prediction using python & machine learning. Retrieved March 25, 2021, from <https://randerson112358.medium.com/stock-price-prediction-using-python-machine-learning-e82a039ac2bb>

*Program to give predictions of stock prices based on historical data.*

17. Raval, S. (2018, May 06). Chatbot tutorial | AI in marketing. Retrieved March 25, 2021, from [https://www.youtube.com/watch?v=PXJtFc8DjsE&ab\\_channel=SirajRaval](https://www.youtube.com/watch?v=PXJtFc8DjsE&ab_channel=SirajRaval)  
*Build a text-based chatbot using real conversational dialog datasets.*
18. Shah, D. (2020, May 10). Exploring the next word predictor! Retrieved March 25, 2021, from <https://towardsdatascience.com/exploring-the-next-word-predictor-5e22aeb85d8f>  
*Create a program to do text prediction based on the previously written text.*
19. Tech With Tim. (2019, September 25). Machine learning projects for beginners (datasets included). Retrieved March 25, 2021, from [https://www.youtube.com/watch?v=BOhgGA7Eu5E&ab\\_channel=TechWithTim](https://www.youtube.com/watch?v=BOhgGA7Eu5E&ab_channel=TechWithTim)  
*Rate new car safety based on safety predictors from real data.*
20. Tensorflow hub object detection colab. (n.d.). Retrieved March 25, 2021, from [https://www.tensorflow.org/hub/tutorials/tf2\\_object\\_detection](https://www.tensorflow.org/hub/tutorials/tf2_object_detection)  
*Multiple named object detection in any given image.*

## Top 5

1. Boundless colab : TENSORFLOW HUB. (n.d.). Retrieved March 25, 2021, from <https://www.tensorflow.org/hub/tutorials/boundless>  
*Program to extrapolate incomplete images.*

**Enough content to use effectively?** Seems to contain enough information to go off.

**Doable in an hour?** Should be short, since it's almost entirely relying on external libraries there's not much local coding to be done.

2. Fast style transfer for arbitrary styles : TENSORFLOW HUB. (n.d.). Retrieved March 25, 2021, from [https://www.tensorflow.org/hub/tutorials/tf2\\_arbitrary\\_image\\_stylization](https://www.tensorflow.org/hub/tutorials/tf2_arbitrary_image_stylization)

**Enough content to use effectively?** Plenty of information to go off.

**Doable in an hour?** Yes, tutorial is fairly short and relies mostly on external libraries.

3. NeuralNine. (2020, February 12). Python machine learning tutorial #8 - handwritten digit recognition with tensorflow. Retrieved March 25, 2021, from [https://www.youtube.com/watch?v=Zi4i7Q0zrBs&ab\\_channel=NeuralNine](https://www.youtube.com/watch?v=Zi4i7Q0zrBs&ab_channel=NeuralNine)

**Enough content to use effectively?** Yes. The video is clear what needs to be done for both training and execution of the AI system.

**Doable in an hour?** Probably. Might take longer due to the training required, depending on the text that is intended to be recognized.

4. Tensorflow hub object detection colab. (n.d.). Retrieved March 25, 2021, from [https://www.tensorflow.org/hub/tutorials/tf2\\_object\\_detection](https://www.tensorflow.org/hub/tutorials/tf2_object_detection)

**Enough content to use effectively?** Yes, it's a full tutorial including the downloading/installation of all the necessary external software, libraries, and models.

**Doable in an hour?** Unlikely. The sheer amount of initial setup would probably take more than an hour due to the number of external libraries and models that need to be downloaded, installed, and configured.

5. Programming Hero. (2020, December 07). Don't buy alexa! build your own. create a virtual assistant with python | python project | jarvis ai. Retrieved March 25, 2021, from [https://www.youtube.com/watch?v=AWvsXxDtEkU&ab\\_channel=ProgrammingHero](https://www.youtube.com/watch?v=AWvsXxDtEkU&ab_channel=ProgrammingHero)

**Enough content to use effectively?** Yes. It's not great as far as tutorials go, but it does contain links to the source code which has better documentation.

**Doable in an hour?** Yes. There aren't that many external dependencies, and the actual logic is simple, most complexity is offloaded.

## Choice of First

My first choice is going to have to be the 'Boundless' tutorial on TensorFlow's website. Not only is it extremely well put together, but it solves a problem that exists and that I've run into before. For all the technology we have, sometimes photographs get corrupted, so having an AI trained to rebuild corrupted sections of images would be very useful. Additionally, extending images outside of their natural bounds could potentially assist in creating screen-sized images for various aspect ratios without cropping.