



Machine Learning Fast Track Hands-on Workshop

Abstract: This workshop introduces participants to Machine Learning in a crash course pattern. Participants will be building hands-on machine learning models and train them on real image data available in the open source domain. At the end they will be familiar with Python ML Libraries and TensorFlow (It is an open source library for numerical computation, specializing in machine learning applications).

They will learn how to solve real world machine learning problems and will work on different projects to get familiar with all the concepts.

They will also get familiar with Deep learning, Transfer learning, ImageNet Datasets, Resnet, MobileNet and convolutional neural networks.

We have also designed some group activities which help them to engage and create models which are effective as well as engaging!

Intended audience: Students who are enrolled in any computer science related courses with interest in Machine learning and Python.

They should be familiar with basic syntax of programming languages as well should possess knowledge of variables, Loops and Logical operations.

Content: There will be **8 hours** of instruction/Day.



Projects: 8 Major hands-on Projects.

Depending on the audience knowledge and interaction the speaker may increase or decrease the projects.

They are dynamic and changes as per the response from the students!

Projects to be Covered:

1. Predicting **Survival rate** for **Titanic** (If you were to board the next Titanic would you survive based on the few parameters?) .
2. **Recognizing handwritten digits(0-9)** using MNIST Dataset with the help of Supervised and unsupervised machine learning.
3. Object Detection using **Transfer Learning** [**Identifying Dog and Cat** from a pretrained network!]
4. Have you heard of **Pubg**? We know a lot of students are playing and there is a buzz about it. We have collected some data related to pubg(kills, weapons, etc) and we will explore and analyse the **WINNER WINNER CHICKEN/PANEER DINNER! Possibility.**
5. Working on IRIS dataset (Supervised and Unsupervised learning) to identify different types of flowers.
6. **Predicting the price of a house** based on the provided data.
7. Analysing if a **Loan Application will be accepted or rejected** based on the data provided!
8. Detecting **Breast Cancer** using **Artificial Neural Network** based on the available data of patients.



Topics to be covered:

- **Python Programming language basic syntax and functions:**
- Seminar about the need for ML
- Writing a few Simple Syntax.
- Writing Functions.
- **TASK: Solve a problem to win a goodie.**
- Working with files.
- Libraries for Machine learning.
- Mathematical Computing with Python.
- **TASK: Solve a problem to win a goodie.**

- **Machine Learning basics:**
- Machine learning in layman's term.
- Programming Languages for ML (Why to use python).
- **TASK: Solve a problem to win a goodie.**
- Libraries and open source tools available.

- **ML Libraries (Pandas):**
- Installation of pandas.
- Getting hands dirty with pandas.
- Importing and analysing data using pandas.
- **TASK: Solve a problem to win a goodie.**
- Pandas functions (Lambda, Map, Filter)



- **ML Libraries (Scikit learn):**
 - Techniques of Machine Learning.
 - Data Preprocessing.
 - Math Refresher.
 - model and execution.
 - **TASK: Solve a problem to win a goodie.**
 - Regression, Classification, Unsupervised learning – Clustering.
 - Running Simple ML Model using Scikit learn.
 - **TASK: Solve a problem to win a goodie.**
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- **Transfer Learning using Resnet Models.**
 - What is transfer learning!
 - Trying Hyperparameters.
 - How you can use this for training your own model.
 - **TASK: Solve a problem to win a goodie.**
 - Tensorflow and TFlite
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- **Artificial Neural Network.**
 - What are ANN and its types!
 - Theory ANN (Concepts: Activation fun. , Feature Matrix etc)
 - **TASK: Solve a problem to win a goodie.**
 - Practical ANN (Concepts: Activation fun. , Feature Matrix etc)
 - Detecting Breast Cancer using Convolution Neural Network!
 - **TASK: Solve a problem to win a goodie.**



- **Future Path and Learning:**
- Converting your Desktop ML model into Android App.
- Communities and Support.
- ML Certification and Future jobs.
- **TASK: Solve a problem to win a goodie.**

Presenter Biography:

Ali Mustafa Shaikh: (Trainer)

Ali Mustafa Shaikh is facilitator for Google Explore ML & President for Infikey.org. He is also a co-organizer of Google Cloud Developers Community Mumbai. He was the Global Infulencer for Google Crowdsourcse for 2 Years and has influenced users from 5+ countries.

He has done 23+ International certification from Google, and Coursera for trending technologies like Python, Machine Learning, Digital Marketing etc. Recognized by Google Students for his excellence in communicating with students at a very young age for Computer Science. He was awarded \$5000 of credits from Google for his excellent work in ML & Cloud domain.

He has won multiple state-level Project Competitions. He was invited as one of the youngest mentors at Smart India Hackathon 2018.

With his outstanding leadership and tireless efforts using innovative



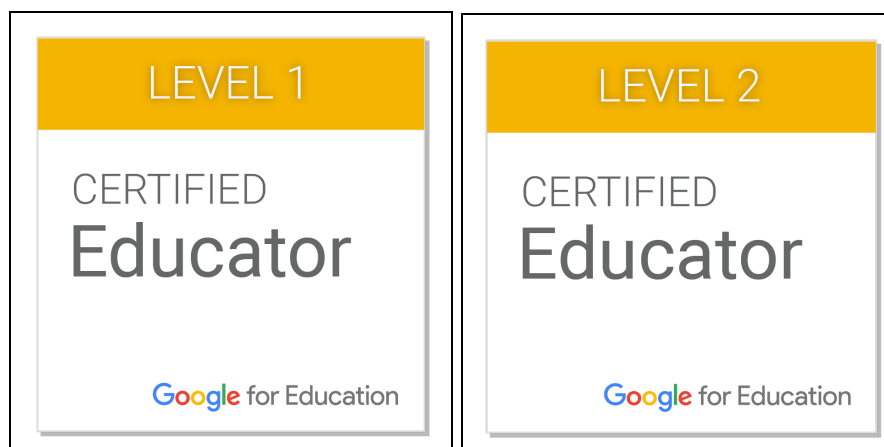
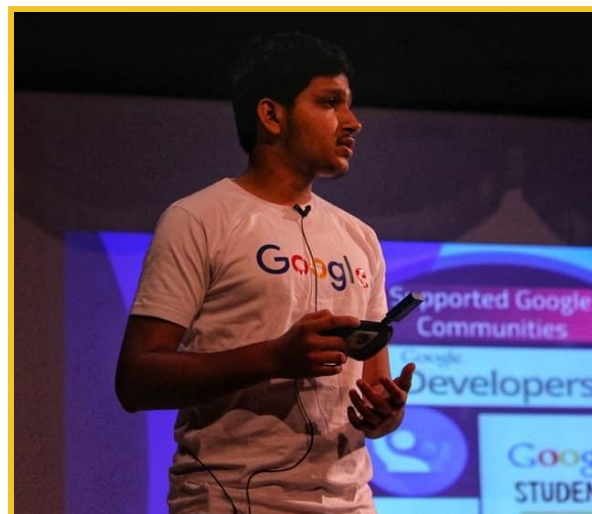
efforts for building user communities in 4 languages in 2 countries training around 30k+ users,

he was **awarded Google Crowdsourcing Community Leader Award 2018.**

Impacted over 50k students by influencing them for the cause of making Indic(Indian solutions) and supporting their regional languages in India.

You can see the complete profile with feedback here:

<http://bit.ly/alimustufa>





Citation for posters : Ali Mustufa, Google Certified Educator Level 1&2

Know more here:

[Google Him](#) | [Feedback](#) (Look at Stories) | [Facebook](#) | [LinkedIn](#) | [Seminars](#)

Materials provided:

Each participant receives electronic copy of

- (1) detailed handouts to be used during the lecture portions of the workshop.
- (2) descriptions of the teaching techniques that will be presented written as we will teach participants to write up new techniques.
- (3) The completed code of the trained model.
- (4) scenarios and questions used during the small group critique portions of the session.
- (5) online GPU/CPU for training the ML model.
- (6) Qwiklabs credits worth \$55 for Cloud training.

Audio/Visual and Computer requirements:

Ideally, participants should have wireless internet access and laptop/Desktop System at each seat but they can also work on their mobile devices as we work on cloud.

The workshop **could not proceed without internet** and laptop/Mobile use will be brief. We will also need a digital projector (for presenters)



and mic System if there is a larger audience (**we prefer collar mic** so that hands of presenter are free while speaking)

Certification:

We will provide 3 certificates to students.

Everyone who will participate in the Workshop will get a **“Certificate of participation”**.

“Certificate of completion” will be given to only those students who **clear the online test for Machine Learning!** It comes with a **verification code and its authenticity can be verified on an online portal!**

Possible Scenarios :

If a student participates in a workshop and appears for a test and passes! He will get 2 certificates. Certificate of Participation & Completion.

If a student participates in a workshop and appears for a test but fails! He will be provided another chance for clearance of exam and if he fails again, he will only get a certificate of participation**

If a student participates in a workshop and doesn't appear for an exam he will only get a certificate of participation.

Common FAQ.

What are the passing criteria? Its Dynamic It depends upon how well you write the code!



Is it MCQ? No, It's all Practicals!

Is there a time limit? Yes there is, but You will get plenty of time!

Will everyone get a certificate? Yes, Certificate of Participation!

Will you cover all projects? Depends on the audience! If they are fast learners we may introduce one more project. If they are slow learners then maybe 3~4 projects might be covered! Avg is 5~6 Projects for any given audience!

What is the validity of Certificate? Its Globally valid and acceptable! We provide Employer Verification of the Certificate's.

Added FREE Certification from Intel:

The certificate will look like this:



See sample here: <https://pdf.credential.net/print/3pm463tt.pdf>

**Everyone till now have got a certificate our trainer's well prepare students