



02/02/2020

**Muhammad Umar**

has successfully completed

**Improving Deep Neural Networks:  
Hyperparameter tuning, Regularization and  
Optimization**

an online non-credit course authorized by deeplearning.ai and offered through  
Coursera

A handwritten signature in blue ink, reading "Andrew Ng".

Adjunct Professor Andrew Ng  
Computer Science

**COURSE  
CERTIFICATE**



Verify at [coursera.org/verify/BT86SLK86H2X](https://coursera.org/verify/BT86SLK86H2X)

Coursera has confirmed the identity of this individual and  
their participation in the course.