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Charles Mackie

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**



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