

## Machine Learning 2018: Profound learning: A use of AI to arrange pictures- Aisha Al Owais-Sharjah Center for Astronomy and Space Sciences

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Living in the 21st century, mankind's most remarkable weapon is innovation. The field of innovation we are keen on is software engineering, explicitly Artificial Intelligence (AI). As the name proposes, AI is tied in with transforming gadgets into shrewd operators that take activities dependent on the earth they see. They are additionally adaptable as far as changing their objective what they are intended to do just as modifying their activities relying upon its evolving condition. What makes AI operators unconventional is their capacity to take in and recollect from their errors. Moreover, Machine Learning (ML) is one of AI's applications that empower frameworks to adapt naturally, improve through understanding and change its activities without human mediation. This takes us to Deep Learning (DL), another subfield of ML worried about calculations roused by the structure and capacity of the human's mind called counterfeit neural systems. It has systems which are fit for taking in information got from taught or unlabeled information; consequently it is additionally known Deep Neural Network (DNN). Every one of those terms lead us to what we are for the most part keen on, Convolutional Neural Networks (CNNs), which is a profound neural system that is especially divider adjusted to arrange pictures, for our situation to group pictures of shooting stars.

Inpainting is the process of reconstructing lost or deteriorated parts of images and videos. In the museum world, in the case of a valuable painting, this task would be carried out by a skilled art conservator or art restorer. In the digital world, inpainting refers to the application of sophisticated

algorithms to replace lost or corrupted parts of the image data.

This official definition of inpainting on Wikipedia already takes into account the use of "sophisticated algorithms" that do the same work of manually overwriting imperfections or repairing defects but in a fraction of the time.

As deep learning technologies progress further, however, the process of inpainting has become automated in so complete a manner that these days, it requires no human intervention at all. Simply feed a damaged image to a neural network and receive the corrected output. Go ahead and try it out yourself, with NVIDIA's web playground that demonstrates how their network fills in a missing portion for any image.

Simply drag and drop any image file, erase a portion of it with the cursor and watch how the AI patches it up. I tried it on a few pictures lying around on my desktop. Here's one of them below, with a big chunk of my face missing and the neural network restoring it again in a matter of seconds, albeit making me look like I just got out of a street fight.

The field of artificial intelligence is essentially when machines can do tasks that typically require human intelligence. It encompasses machine learning, where machines can learn by experience and acquire skills without human involvement. Deep learning is a subset of machine learning where artificial neural networks, algorithms inspired by the human brain, learn from large amounts of data. Similarly to how we learn from experience, the deep learning algorithm would perform a task

repeatedly, each time tweaking it a little to improve the outcome. We refer to 'deep learning' because the neural networks have various (deep) layers that enable learning. Just about any problem that requires "thought" to figure out is a problem deep learning can learn to solve.

**Biography :**

Aisha Al Owais has finished her BSc in Computer Science from the College of Engineering at the American University of Sharjah. She is filling in as a Research Assistant in the Meteorites Center at the Sharjah Center for Astronomy and Space Sciences.

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