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# Dictionary of Scientific Paper Writing in Computer Vision for Non-native Speakers

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## 1 A

**absence** (ab-sen-ce) *N-SING.* • The absence of something from a place is the fact that it is not there or does not exist. — *We present an approach for learning to translate an image from a source domain  $X$  to a target domain  $Y$  in the absence of paired examples.*

**advance** (advance) *v.* • If you advance a cause, interest, or claim, you support it and help to make it successful. — *In particular, our model is capable of synthesizing 2K resolution videos of street scenes up to 30 seconds long, which significantly **advances** the state-of-the-art of video synthesis.*

**amenable** (amen-able) *adj.* • If you are amenable to something, you are willing to do it or accept it. — *We find that applying orthogonal regularization to the generator renders it **amenable**...*

**appealing** (appeal-ing) *adj.* • Someone or something that is appealing is pleasing and attractive. — *We observe that translations on training data are often more **appealing** than those on test data.*

**approximately** (approximate-ly) *adv.* • — *One can **approximately** model all conditionals by training a family of conditional models that share parameters.*

**aware** (aware) *adj.* • If you are aware of something, you know about it. — *We are not **aware** of any work making use of similarity metrics for machine learning, except a recent pre-print of Ridgeway et al. (2015).*

## 2 B

**branch** (branch) *v.* • Divide into two or more branches so as to form a fork. — *Multi person pose estimation solutions **branched** out as bottom-up and top-down methods.*

## 3 C

**chaotic** (chao-tic) *adj.* • Something that is chaotic is in a state of complete disorder and confusion. — *This may be because minor structural errors are more visible in maps, which have rigid geometry, than in aerial photographs, which are more **chaotic**.*

**compelling** (compel-l-ing) *adj.* • If you describe something such as a film or book, or someone's appearance, as compelling, you mean you want to keep looking at it or reading it because you find it so interesting. — *The cGANs can produce **compelling** colorizations (first two rows), but have a common failure mode of producing a grayscale result (last row).*

**complementary** (comple-ment-ary) *adj.* • Complementary things are different from each other but make a good combination. — *Further, we show that adaptation at both the pixel and representation*

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\*Work started at September 5th 2018, when FW was a visiting student at Carnegie Mellon University.

level can offer **complementary** improvements with joint pixel-space and feature adaptation leading to the highest performing model for digit classification tasks.

**considerably** (consider-able-ly) *adv.* • Relatively or Pretty. — Here we show some of the most successful results in our test set - average performance is **considerably** worse.

**contemporary** (con-tempor-ary) *adj.* • Contemporary things are modern and relate to the present time. — Our experiments confirm that domain adaptation can benefit greatly from cycle-consistent pixel transformations, and that this is especially important for pixel-level semantic segmentation with **contemporary** FCN architectures.

**continuation** (continua-tion) *n.* • Something that is a continuation of something else is closely connected with it or forms part of it. — Like many deep generative models, GANs have previously been applied to semi-supervised learning [13, 14], and our work can be seen as a **continuation** and refinement of this effort.

**couple** (couple) *v.* • If you say that one thing produces a particular effect when it is coupled with another, you mean that the two things combine to produce that effect. — Through carefully-designed generator and discriminator architectures, **coupled** with spatio-temporal adversarial objective, we achieve high-resolution, photorealistic, temporally coherent video results on a diverse set of input formats including segmentation masks, sketches and poses.

**cumbersome** (cumbersome) *adj.* • A cumbersome system or process is very complicated and inefficient. — Using a learned video synthesis model, one can generate realistic videos without explicitly specifying scene geometry, materials, lighting, and their dynamics, which would be **cumbersome** but necessary when using standard graphics rendering techniques.

## 4 D

**devise** (devise) *vt.* • If you devise a plan, system, or machine, you have the idea for it and design it. — Training could be accelerated greatly by **devising** better methods for coordinating G and D.

**differentiate** (different-i-ate) *vt.* • If you differentiate between things or if you differentiate one thing from another, you recognize or show the difference between them. — The generator aims to produce realistic synthetic data so that the discriminator cannot **differentiate** between real and synthetic data.

**delineate** (delineate) *vt.* • If you delineate something such as an idea or situation, you describe it or define it, often in a lot of detail. — We compare our objective with that of Taskonomy [42] to **delineate** the difference.

**deterministic** (determin-istic) *adj.* • Deterministic ideas or explanations are based on determinism. — Recently, stochastic neural networks have become popular, and **deterministic** networks are being used for image generation tasks.

## 5 E

**eliminate** (eliminate) *vt.* • To eliminate something, especially something you do not want or need, means to remove it completely. — The fundamental improvement in speed comes from **eliminating** bounding box proposals and the subsequent pixel or feature resampling stage.

**elusive** (elusive) *adj.* • Something or someone that is elusive is difficult to find, describe, remember, or achieve. — Despite recent progress in generative image modeling, successfully generating high-resolution, diverse samples from complex datasets such as ImageNet remains an **elusive** goal.

**encourage** (encourage) *vt.* • If something encourages a particular activity or state, it causes it to happen or increase. — We introduce the following techniques that are heuristically motivated to **encourage** convergence.

**engineer** (engine-er) *verb.* • When a vehicle, bridge, or building is engineered, it is planned and constructed using scientific methods. — We note that their method was specifically **engineered** to do well on colorization

**excel** (excel) *vi.* • If someone excels in something or excels at it, they are very good at doing it. — *Deep neural networks **excel** at learning from large amounts of data, but can be poor at generalizing learned knowledge to new datasets or environments.*

**explicit** (explicit) *adj.* • Something that is explicit is expressed or shown clearly and openly, without any attempt to hide anything. — *That is faster than the previous state-of-the-art for single shot detectors (YOLO), and significantly more accurate, in fact as accurate as slower techniques that perform **explicit** region proposals and pooling (including Faster R-CNN).*

## 6 F

**frame** (frame) *verb.* • When a picture or photograph is framed, it is put in a frame. — *Many classic problems can be **framed** as image transformation tasks, where a system receives some input image and transforms it into an output image.*

## 7 G

**Babble** (bab-uh l) *Verb* • Talk rapidly and continuously in a foolish, excited, or incomprehensible way.

## 8 H

**high-end** (high-end) *adj.* • High-end products, especially electronic products, are the most expensive of their kind. — *While accurate, these approaches have been too computationally intensive for embedded system and, even with **high-end** hardware, too slow for real-time applications.*

## 9 I

**imminent** (imminent) *adj.* • If you say that something is imminent, especially something unpleasant, you mean it is almost certain to happen very soon. — *When collapse to a single mode is **imminent**, the gradient of the discriminator may point in similar directions for many similar points.*

**intractable** (in-tract-able) *adj.* • If you say that a person, problem, or device is tractable, you mean that they can be easily controlled or dealt with. — *Such models generally have **intractable** likelihood functions and therefore require numerous approximations to the likelihood gradient.*

**intriguing** (intrigu-ing) *adj.* • If you describe something as intriguing, you mean that it is interesting or strange. — *Szegedy et al first discovered an **intriguing** weakness of deep neural networks in the context of image classification.*

## 10 J

## 11 K

## 12 L

**leading** (lead-ing) *adj.* • The leading group, vehicle, or person in a race or procession is the one that is at the front. — *We first provide a quantitative comparison against **leading** methods in Sec. 4.1.*

## 13 M

**mitigate** (mitigate) *vt.* • To mitigate something means to make it less unpleasant, serious, or painful. — *We propose a class of similarity metrics, that **mitigate** this problem.*

## 14 N

## 15 O

## 16 P

**pleasing** (pleas-ing) *adj.* • To popularize something means to make a lot of people interested in it and able to enjoy it. — *We also experiment with single-image super-resolution, where replacing a per-pixel loss with a perceptual loss gives visually **pleasing** results.*

**popularize** (popular-ize) *vt.* • Something that is pleasing gives you pleasure and satisfaction. — *The problem of visual domain adaptation was introduced along with a pairwise metric transform solution by Saenko et al. (2010) and was further **popularized** by the broad study of visual dataset bias (Torralba & Efros, 2011)*

**presumably** (presum-ab-ly) *adv.* • If you say that something is presumably the case, you mean that you think it is very likely to be the case, although you are not certain. — *Future improvements to GANs can **presumably** be expected to yield/generate further improvements to semi-supervised learning.*

**prevail** (prevail) *vi.* • If a proposal, principle, or opinion prevails, it gains influence or is accepted, often after a struggle or argument. — *This pipeline has **prevailed** on detection benchmarks since the Selective Search work through the current leading results on PASCAL VOC, COCO, and ILSVRC detection all based on Faster R-CNN...*

**prevailing** (prevail-ing) *adj.* • The prevailing wind in an area is the type of wind that blows over that area most of the time. — *Yang et.al. provide an exhaustive evaluation of **prevailing** techniques prior to the widespread adoption of convolutional networks.*

**prominent** (prominent) *adj.* • Something that is prominent is very noticeable or is an important part of something else. — *A **prominent** class of probabilistic models of images are restricted Boltzmann machines and their deep variants.*

**promise** (promise) *n-UNcount* • If someone or something shows promise, they seem likely to be very good or successful. — *Nonetheless, they demonstrate the **promise** of our approach as a generic commodity tool for image-to-image translation problems.*

**promising** (promis-ing) *adj.* • Someone or something that is promising seems likely to be very good or successful. — *The results in this paper suggest that conditional adversarial networks are a **promising** approach for many image-to-image translation tasks, especially those involving highly structured graphical outputs.*

## 17 Q

## 18 R

**remarkable** (re-mark-able) *adj.* • Someone or something that is remarkable is unusual or special in a way that makes people notice them and be surprised or impressed. — *Given the fact that bottom-up methods have always performed less accurately than the top-down methods, our results are **remarkable**.*

**render** (render) *vt.* • You can use render with an adjective that describes a particular state to say that someone or something is changed into that state. For example, if someone or something makes a thing harmless, you can say that they render it harmless. — *We find that applying orthogonal regularization to the generator **renders** it amenable.*

**resemble** (resemble) *vt.* • If one thing or person resembles another, they are similar to each other. — *In all cases, the generated images look sharp and **resemble** natural images.*

## 19 S

**sidestep** (side-step) *vt.* • If you sidestep a problem, you avoid discussing it or dealing with it. — *We propose a new generative model estimation procedure that **sidesteps** these difficulties.*

**spurious** (spur-ious) *adj.* • Something that is spurious seems to be genuine, but is false. — *Even a slight departure from a network's training domain can cause it to make **spurious** predictions and significantly hurt its performance.*

**striking** (striking) *adj.* • Something that is striking is very noticeable or unusual. — *So far, the most **striking** successes in deep learning have involved discriminative models, usually those that map a high-dimensional, rich sensory input to a class label.*

**subtle** (subtle) *adj.* • Something that is subtle is not immediately obvious or noticeable. — *In many cases, these modifications can be so **subtle** that a human observer does not even notice the modification at all, yet the classifier still makes a mistake.*

**superior** (superior) *adj.* • If you describe something as superior, you mean that it is good, and better than other things of the same kind. — *When both U-Net and encoder-decoder are trained with an L1 loss, the U-Net again achieves the **superior** results.*

**surge** (surge) *n.* • A surge is a sudden large increase in something that has previously been steady, or has only increased or developed slowly. — *Recently there has been a **surge** of interest in training neural networks to generate images.*

**susceptible** (suscepti-ble) *adj.* • If you are susceptible to something or someone, you are very likely to be influenced by them. — *They showed that despite their high accuracies, modern deep networks are surprisingly **susceptible** to adversarial attacks in the form of small perturbations to images that remain (almost) imperceptible to human vision system.*

## 20 T

**tackle** (tackle) *verb.* • If you tackle a difficult problem or task, you deal with it in a very determined or efficient way. — *Although these approaches **tackle** the multi-modal image synthesis problem, they are unsuitable for our image manipulation task mainly for two reasons.*

## 21 U

**unfortunate** (un-fortun-ate) *adj.* • If you describe something that has happened as unfortunate, you think that it is inappropriate, embarrassing, awkward, or undesirable. — *Batch normalization is very helpful, but for GANs has a few **unfortunate** side effects.*

## 22 V

**vulnerable** (vulner-able) *adj.* • Something that is vulnerable can be easily harmed or affected by something bad. — *Most existing machine learning classifiers are highly **vulnerable** to adversarial examples.*

## 23 W

## 24 X

## 25 Y

26 Z