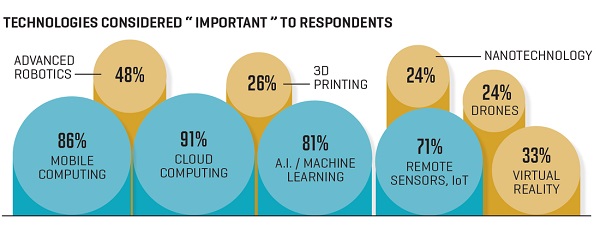
**Here is How to Prepare Your Business Data for Artificial Intelligence**

https://aitrends.com/ai-adoption/here-is-how-to-prepare-your-business-data-for-artificial-intelligence/



Over the recent decade, only a few technologies captured our attention quite as much as artificial intelligence (AI). The interest is justified, because the technology is poised to drastically change the current business landscape.

For example, a recent survey of Fortune 500 CEOs found that 81 percent of them believed that AI/Machine learning technology was “important” for them.

The data showed that AI was more important for CEOs than virtual reality, remote sensors, nanotechnology, 3D printing, and advanced robotics. More and more people realize that AI is not science fiction and is already being used extensively.

Are you ready to embrace the endless possibilities provided by AI?

In this article, we’re going to review what you need to consider to ensure a successful implementation and four preparatory actions that you need to implement to prepare your business data for AI.

##### ****AI Implementation Considerations****

To lay out the groundwork for successful integration of AI, you need to consider the following.

* Familiarize yourself with AI and what it can do for your business data. You as a business owner cannot afford not to understand the capabilities of AI, because you can lose a lot of great opportunities. So, to make sure you know what it can do, take an online course and get your knowledge up to date. Good options include Intro to Artificial Intelligence by Udacity and Artificial Intelligence for Business from Columbia Business School.
* Determine the most important areas in which AI can benefit your business. Using AI without a clear action plan is not a good move because in this case, you’re basically diving into the unknown. When discussing how your business can benefit from AI, be sure to identify particular areas and prioritize some of them. Business data should certainly be there.
* Make sure your IT infrastructure can handle the change. A business must have a solid IT infrastructure to handle AI, and many of them are lacking that. For example, a recent study by Belatrix found that 29 percent of respondents viewed “Difficulty managing and analyzing the data” as one of the top five issues with getting started with AI.

Now, let’s see what it takes to prepare your business data for AI.

**1. Ensure That Your Business Data Has Labels to Help AI Make Sense of It**

AI and machine learning (ML) have limited ability to analyze data without labels. Even though unsupervised learning in ML can conduct exploratory analysis on such data, it cannot produce insightful information. Therefore, it’s not recommended for businesses to make a transition to AI and ML without data that is properly labeled.

For example, let’s assume that a business has a large volume of customer support emails and tickets that are labeled according to the category of the problem (deliver issues, refund requests etc.). By developing a system that automatically labels incoming customer support chats, emails, and phone calls, the business will ensure that the insights produced by AI will be meaningful.

##### ****2. All Context Must Come from You****

Do you know what information to feed AI algorithms? Indeed, this is something that should not be taken lightly, because thinking through what information to feed is not as easy as it sounds. For example, most AI and ML algorithms are proficient at determining correlations, but they don’t understand the information surrounding the data.

As the result, they cannot determine whether the information makes it relevant or irrelevant. Below is an example of how “context” could undermine the ability of AI and ML to develop good solutions:

A recommendation tool for an online store over-recommends a particular product. To discover the problem, specialists conduct an investigation and find that this product was promoted heavily six months ago, so historical data showed a large increase in sales from current customers; moreover, the promotion was based on the “discount” rather than the actual usefulness to the customer.

To avoid having similar problems, you should give AI both data and context. In this case, it will understand the facts surrounding the data and ensure that solutions it produces are relevant.

# So, You are Working on a Machine Learning Problem…

https://machinelearningmastery.com/working-machine-learning-problem/

# C:\Users\HP\Desktop\PPT\So-You-are-Working-on-a-Machine-Learning-Problem....jpg

So, you’re working on a machine learning problem.

I want to really nail down where you’re at right now.

Let me make some guesses…

## 1) You Have a Problem

So you have a problem that you need to solve.

Maybe it’s your problem, an idea you have, a question, or something you want to address.

Or maybe it is a problem that was provided to you by someone else, such as a supervisor or boss.

This problem involves some historical data you have or can access. It also involves some predictions required from new or related data in the future.

Let’s dig deeper.

## 2) More on Your Problem

Let’s look at your problem in more detail.

You have historical data.

You have observations about something, like customers, voltages, prices, etc. collected over time.

You also have some outcome related to each observation, maybe a label like “good” or “bad” or maybe a quantity like 50.1.

The problem you want to solve is, given new observations in the future, what is the most likely related outcome?

So far so good?

## 3) The Solution to Your Problem

You need a program. A piece of software.

You need a thing that will take observational data as input and give you the most likely outcome as output.

The outcomes provided by the program need to be right, or really close to right. The program needs to be skillful at providing good outcomes for observations.

With such a piece of software, you could run it multiple times for each observation you have.

You could integrate it into some other software, like an app or webpage, and make use of it.

Am I right?

## 4) Solve with Machine Learning

You want to solve this problem with machine learning or artificial intelligence, or something.

Someone told you to use machine learning or you just think it is the right tool for this job.

But, it’s confusing.

* How do you use machine learning on problems like this?
* Where do you start?
* What math do you need to know before solving this problem?

Does this describe you?

Or maybe you’ve started working on your problem, but you’re stuck.

* What data transforms should you use?
* What algorithm should you use?
* What algorithm configurations should you use?

Is this a better fit for where you’re at?

## I Am Here to Help

I am working on a step-by-step playbook that will walk you through the process of defining your problem, preparing your data, selecting algorithms, and ultimately developing a final model that you can use to make predictions for your problem.

But to make this playbook as useful as possible, I need to know where you are having trouble in this process.

Please, describe where you’re stuck in the comments below.

Share your story. Or even just a small piece.

I promise to read every single one, and even offer advice where possible.

# Learning to write programs that generate images

# https://deepmind.com/blog/learning-to-generate-images/

**Through a human’s eyes, the world is much more than just the images reflected in our corneas. For example, when we look at a building and admire the intricacies of its design, we can appreciate the craftsmanship it requires. This ability to interpret objects through the tools that created them gives us a richer understanding of the world and is an important aspect of our intelligence.**

**We would like our systems to create similarly rich representations of the world. For example, when observing an image of a painting we would like them to understand the brush strokes used to create it and not just the pixels that represent it on a screen.**

[In this work](https://deepmind.com/documents/183/SPIRAL.pdf), we equipped artificial agents with the same tools that we use to generate images and demonstrate that they can reason about how digits, characters and portraits are constructed. Crucially, they learn to do this by themselves and without the need for human-labelled datasets. This contrasts with [recent research](https://arxiv.org/pdf/1704.03477.pdf) which has so far relied on learning from human demonstrations, which can be a time-intensive process.



Credit: Shutterstock

We designed a deep reinforcement learning *agent* that interacts with a computer [paint program](http://mypaint.org/), placing strokes on a digital canvas and changing the brush size, pressure and colour. The untrained agent starts by drawing random strokes with no visible intent or structure. To overcome this, we had to create a way to reward the agent that encourages it to produce meaningful drawings.

To this end, we trained a second neural network, called the *discriminator*, whose sole purpose is to predict whether a particular drawing was produced by the agent, or if it was sampled from a dataset of real photographs. The painting agent is rewarded by how much it manages to “fool” the discriminator into thinking its drawings are real. In other words, the agent’s reward signal is itself learned. While this is similar to the approach used in Generative Adversarial Networks (GANs), it differs because the generator in GAN setups is typically a neural network that directly outputs pixels. In contrast, our agent produces images by writing graphics programs to interact with a paint environment.



In the first set of experiments, the agent was trained to generate images resembling [MNIST](http://yann.lecun.com/exdb/mnist/) digits: it was shown what the digits look like, but not how they are drawn. By attempting to generate images that fool the discriminator, the agent learns to control the brush and to manoeuvre it to fit the style of different digits, a technique known as visual [program synthesis](https://en.wikipedia.org/wiki/Program_synthesis).

We also trained it to reproduce specific images. Here, the discriminator’s aim is to determine if the reproduced image is a copy of the target image, or if it has been produced by the agent. The more difficult this distinction becomes for the discriminator, the more the agent is rewarded.

Crucially, this framework is also interpretable because it produces a sequence of motions that control a simulated brush. This means that the model can apply what it has learnt on the simulated paint program to re-create characters in other similar environments, for instance on a simulated or real robot arm. A video of this can be seen [here](https://youtu.be/XXM3PdIdLJQ).

# An Opportunity for RFID Companies

<http://www.rfidjournal.com/blogs/rfid-journal/entry?11650>

After I wrote about the marketing challenges [RFID](http://www.rfidjournal.com/glossary/term?126) startups face (see [A Question of Life or Death for RFID Companies](http://www.rfidjournal.com/articles/view?14112) and [More on the Question of Life or Death](http://www.rfidjournal.com/blogs/rfid-journal/entry?11640)), I received an e-mail from an entrepreneur who suggested that my column and blog were not very encouraging. I said that by no means did I intend to discourage [RFID](http://www.rfidjournal.com/glossary/term?126) startups. In fact, I believe the [RFID](http://www.rfidjournal.com/glossary/term?126) market has never been better for startups.

First, there is more business to be had. And second, even the larger [RFID](http://www.rfidjournal.com/glossary/term?126) companies have not established their brands in the minds of buyers (see [Brand Problems for RFID Vendors](http://www.rfidjournal.com/articles/view?14150)). So the field is wide open for a startup that has both good products and strong marketing.

My correspondent suggested that perhaps [RFID Journal](http://www.rfidjournal.com/glossary/term?209) could offer free advertisements in exchange for a percentage of the resulting business. I had considered this approach briefly, but had concluded that it would put [RFID Journal](http://www.rfidjournal.com/glossary/term?209) in a position that could be perceived as compromising our objectivity. I've also thought about working with [RFID](http://www.rfidjournal.com/glossary/term?126) technology providers to sell starter solutions, which I know some end users are seeking. We tried this a few years ago, but the solutions were too costly (approximately $10,000).

I think companies would do well to sell a simple [RFID](http://www.rfidjournal.com/glossary/term?126) solution that would include tags, readers and basic software for conducting inventory counts, for roughly $3,000. I believe we could sell these and take a percentage, and the [RFID](http://www.rfidjournal.com/glossary/term?126) company would have a customer that would likely expand on the solution over time.

Sadly, most [RFID](http://www.rfidjournal.com/glossary/term?126) providers don't want to get leads this way, because they would have to do some handholding for the company that purchased the starter kit. They don't want to make the investment in time, in the hope that the user will see the value of [RFID](http://www.rfidjournal.com/glossary/term?126) and go for something much larger over the long term.

I believe that getting the technology in the hands of more companies is exactly the way to sell [RFID](http://www.rfidjournal.com/glossary/term?126). Any end user that tries a simple solution which delivers a lot of value will want to expand to a more robust solution later on. I seem to be alone on this, though, even though I am willing to put skin in the game.

*Mark Roberti is the founder and editor of RFID Journal. If you would like to comment on this article, click on the link below. To read more of Mark's opinions, visit the* [*RFID Journal Blog*](http://www.rfidjournal.com/blog)*, the* [*Editor's Note archive*](http://www.rfidjournal.com/article/archive/2) *or* [*RFID Connect*](http://www.rfidconnect.com/UserProfile.aspx?id=b1f249f8-a2c3-488f-a002-03a88bd60fe5)*.*