About this code challenge

Here at sewts, we always strive for the best. And to achieve that, we need to build a world class team that works efficiently together. You may think that this code challenge is just for us to check whether you can produce a decent piece of code – but there is more to it. This code challenge is also intended for **you** to assess whether working at sewts would meet your expectations. Because only if it does, you will be a **happy and authentic part of our team** – and that's what we are always aiming for. Many of the libraries used here will accompany you during your time with us. So, take your time and ask yourself if this is something you would be happy to work with for the next weeks, months or even years.

What this code challenge is NOT

This code challenge is not intended to make you feel bad or take up lots of your valuable time. It is therefore not really hard and covers only some basics. It should only take you one day at maximum and there is no right and wrong here – do it your way!

What we expect you to use

We like code to be the *pythonic* way and we are using **Python 3**. So, we would ask you to stay with that as well. For our deep learning development, we use some well-known libraries which you sure already have encountered or will encounter in your future projects. Our main ML framework is PyTorch and you are welcome to use that as well but don't hesitate if you want to use the framework of your choice.

What we want you to show

We want to get an impression on how you structure your code and how you approach different problems. Can you document it efficiently and clearly so others can continue working on it? Here are some key points which we think to be important:

- Sophisticated naming conventions
- Code styling (i.e. PEP8)
- Simple but expressive comments
- Code reusability
- Testing procedures
- Consistent use of a version control system (i.e. git)

And here comes the task

Here at sewts we are very excited about solving complicated computer vision tasks with deep learning algorithms. During your time with us you will very probably come across such a task. This coding challenge is therefore intended to represent a very simplified workflow of solving a part of a computer vision problem – a localization problem to be precise. As you might know, we are working a lot with textiles. That's why you will find lots of towels in the dataset we provide for this challenge. Here comes the task:

- We want you to prepare the dataset / data loading so that one could easily use it to train a model for object localization (bounding box)
- For this purpose, we provide a very small dataset for you (should be attached to email)
- Anything else is up to you!

Some things to take into consideration:

- Pretend to be working with a very simple model architecture. It just expects the image and two points defining the bounding box
- Labels are provided in the form of a csv file. It's always a good start to first load, analyse and display the data.
- It should be possible to load batches of images and corresponding labels
- You should think about data augmentation
- It's always useful to have a method at hand for visualizing a batch of data

What's left to say…

First of all, we really appreciate you taking the time for this little coding challenge. And don't panic if something doesn't work or if your code isn't complete – we won't rip your head off. The most important thing is that you comment everything thoroughly, so we have a chance to understand what you have been doing.

Finally, put everything into a private github repository and grant us access (TillRickert – till.rickert@sewts.de). That's it, congratulations! We are sure you did an amazing job and we look forward to being enlightened by your code!

Cheers,

THE SEWTS TEAM