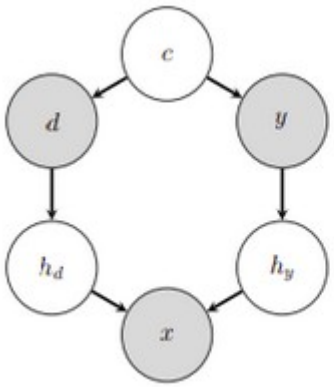
Background

I have a strong quantitative and technical background in computer science. During my education, I got a lot of exposure to theoretical and practical knowledge in our current technological and methodological landscape. I believe that my background has equipped me with a well-balanced skillset, comprising both theoretical and practical expertise, essential for executing successful and impactful projects. As a person, I'm very curious about how things work, ambitious and I like to understand domains holistically but I'm not afraid of rolling my sleeves and getting things done. When I was student, I produced two theses whose topic and content are related to machine learning and computer vision. The bachelor thesis was the "*Convolutional Models for Person Localization in Sport Broadcasts*". It main task was to detect the football players with then state of the art object detection models. I used then Facebook's Mask-RCNN object detection model and used 10min video of the football match where players where annotated with boxes. I did a finetuning of this model on this particular domain, measured the results and described the architecture. The architecture was a deep convolutional network which was special because it had a bilinear interpolation layer which corrected the errors in predictions because of discretization issue. This layer gave the model a comparative advantage compared to other models.
My master thesis was "*Semantic segmentation of buildings in satellite imagery*" development of the deep learning data pipeline and research about domain adaptation methods, applied to images, whose aim is to transfer features from one domain to another. To be more specific, it's aim is to create a new dataset D' which is obtained by transferring image features from unannotated D2 to annotated D1 through adverserial learning tactics. We do this in order to reduce covariate shift which happens because model learned spurious features which doesn't have predictive power.



$$
\begin{aligned}
d &:= f_D(c) \\
y &:= f_Y(c) \\
h_d &:= f_{H_d}(d) \\
h_y &:= f_{H_y}(y) \\
x &:= f_X(h_d, h_y), \quad (1)
\end{aligned}
$$

In this figure, you can see directed acyclic graph which describes data generation for one data example **x** in D. X is the union of the two set of features, the target object feature(y) and environment features(d). Basically, in ideal scenario, model should ignore environment features and only focus on the target features. It shouldn't care if the cat is on the tree or on the grass, it should only detect a cat. Generally, this things are now very popular and casual inference field is dealing with this. I have worked for a semester in a startup whose goal was to produce end-to-end computer vision ML platform for detecting browser objects such us URL or SSL key in order to assess the plausibility of the phishing attack. The project encompassed the planning and execution of data collection steps, data processing, choosing the right model and empirically test them, implementing quantitative measures for assessing the model performance and to transform the annotations and data across different platforms and systems in order to align the different systems.

As a student, I published one research article in the IEEE 7th International Conference on Data

Science and Advanced Analytics at Sydney, Australia in an NLP field. The article can be found here. The goal of the paper is to create a transformed based model for detecting bots on twitter, analyze the dataset and to feature selection for our task. As of the last year, I was a trainee in the European Central Bank. Some of the tasks on which I worked were:

- Monitoring and analysing the performance of the Eurosystem monetary policy implementation framework and contributing to the preparation of policy proposals for its improvement
- Helping maintain and enhance the Eurosystem market operation framework on a policy, operational, and technical level by performing data analysis activities, testing software and improving internal business intelligence reporting
- Contributing and enhancing the econometrical research for testing the effect of the liquidity injection on the supervisory regulatory measures
- Monitoring and assessing the financial eligibility of monetary policy counterparties and contributing to the analysis of topics such as minimum reserve requirements, targeted longer-term refinancing operations, emergency liquidity assistance and Eurosystem balance sheet items

Skills

With regards to the technical maters, I have experience in using relational data management systems, writing SQL queries and managing the database. With respect to the software engineering most of the time I use Python and Java for developing software engineering projects and crunching data. I'm familiar with R. I’m proficient with version control systems and worked collaboratively on projects using Git. I'm understand the fundamental networking concepts. I'm using Linux and I understand the basics behind it.

Please don't hesitate to contact me if you will have questions or suggestions,
Kind regards,
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