**NeurIPS Hide-and-seek Privacy Challenge documentation questionnaire**

**Team name**

|  |
| --- |
| Mikan |

**Submission filenames(s)**

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| --- | --- |
| Hider | hider\_hamada\_2020-1128-083527.zip |
| Seeker |  |

**What class of algorithms does your solution belong to?** (e.g. GANs, VAEs, noise-injection, nearest neighbor, etc.)

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| --- | --- |
| Hider | Synthetic data generation based on normal distribution |
| Seeker |  |

**Describe your algorithm in one sentence** (e.g. “Noise is added to the original data and then this data is returned.”)

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| Hider | Learn a function to transform the original data to a normal distribution. The inverse function of the function is applied to normal random numbers to create synthetic data. |
| Seeker |  |

**Describe your algorithm in words** (e.g. “Noise is drawn from a Gaussian distribution, with mean 0 and variance s, where the dimension is determined by the size of the dataset. This noise is added to the original data to produce a noisy version of the dataset and this noisy dataset is then returned as the synthetic data.”)

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| Hider | Using PowerTransform, we learn a function to transform the original data into a normal distribution. The inverse function of the function is applied to random numbers generated from the normal distribution. |
| Seeker |  |

**Specify any loss functions used** (e.g. “No loss functions used.”)

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| Hider | No loss functions used. |
| Seeker |  |

**Specify any hyperparameters and how they are optimized (or preset values)** (e.g. “The noise size, s, is set to 0.1.”)

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| --- | --- |
| Hider | None |
| Seeker |  |

**Specify any pre-trained models used by your algorithm** (e.g. “None.”)

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| --- | --- |
| Hider | None |
| Seeker |  |

**Pseudo-code for your algorithm**

e.g. **Inputs:** Dataset, D, random seed

**Hyperparameters:** s (default 0.1)

1. Determine dataset dimension: n x d x T

2. Draw N ~ N(0, s), an n x d x T dimensional Gaussian

3. Return D + N

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| Hider | Inputs: Dataset  For each time, generate a synthetic data. Generate a synthetic data in the following three steps.   1. Power transform the original data. 2. Generate data from random numbers that follow a normal distribution. 3. The inverse function of the power transform is applied to data generated from the normal distribution.   Finally, modify the minimum and maximum value of each feature. |
| Seeker |  |

Finally, alongside this document **please also submit a commented version of your code**. Please include:

- Docstrings for each new class/function defined

- Inline comments for your main function/class

The goal of these comments is to tie the code to the description you have provided here. Please do not alter the actual content of your code - only add comments/docstrings.

**Submitting your documentation and commented code**

Please submit your commented code within a .zip or equivalent file type (1 file per solution), and share it with us as an attachment alongside this Word doc.

You can send these via email (to [nm736@cam.ac.uk](mailto:nm736@cam.ac.uk); [james.jordon@wolfson.ox.ac.uk](mailto:james.jordon@wolfson.ox.ac.uk); [es583@cam.ac.uk](mailto:es583@cam.ac.uk)) or DM James Jordon/Evgeny Saveliev on Slack (you can join the workspace [with this URL](https://join.slack.com/t/hideandseekpr-fbc8582/shared_invite/zt-k2h9xye8-RQNen128uXIG2TRsLa_ppA)).