|  |  |
| --- | --- |
| **Model Card Version:** 0.0\_YYYY  **License:** Apache 2.0 Model Name **Model:** [Link to model] **Documentation:** [Link to detailed documentation]  **Model Card Authors:** [Name and Contact] | Write a summary describing your model in a couple of sentences. Include information about the type of model and tasks, the motivation behind the models, and the problems or use cases it is suitable for. What is the benefit of using this model? |
|  | |

|  |  |  |  |
| --- | --- | --- | --- |
| Model Snapshot | | | |
| Model Overview | | | |
| MODEL ARCHITECTURE | INPUT(S) | | OUTPUT(S) |
| Describe the architecture of the model here. | Provide a description (with necessary specifications) of the input data provided to the model for outputs. | | Provide a description (with necessary specifications) of the output data from the model for given inputs. |
| Write here. Link to additional details where available / necessary. | Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. |
| Usage | | | |
| APPLICATION | BENEFITS | | KNOWN CAVEATS |
| Where has this model been used, or where is it currently used? Include links for readers to learn more. | Why might users choose to use this model, relative to others? Evidence your response with metrics or performance results | | Are there any known and preventable failures about this model? |
| Write here. Link to additional details or include examples where available / necessary. | Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. |
| Model Creators | | | |
| MODEL CONTACT | MODEL AUTHOR(S) | | CITATION |
| How can model owners be contacted for questions about the model? | Write the names of all authors associated with the model. Provide the affiliation and year if different from publishing institutions or multiple affiliations, using the format Name, Title, Affiliation, YYYY: | | If available, provide a citation to your model; else indicate unavailable. |
| Write here. Link to additional details about authors where available / necessary. | Write here. Link to additional details about authors where available / necessary. | | Write here. Link to additional details or include bibtex/citation format where available / necessary. |
| System Type | | | |
| SYSTEM DESCRIPTION | UPSTREAM DEPENDENCIES | | DOWNSTREAM DEPENDENCIES |
| Is this a standalone model, or intended to be used as part of a system with other models? Include links where necessary. | If the model requires specific inputs, where should they come from? Are there any specific preprocessing steps that should be applied? Include links where necessary. | | If the model’s outputs can be fed into another system, where should they go? Are there any specific post-processing steps that should be applied? Include links where necessary. |
| Write here. Link to additional details or include examples where available / necessary. | Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. |
| Implementation Frameworks | | | |
| HARDWARE & SOFTWARE FOR TRAINING | | HARDWARE & SOFTWARE FOR DEPLOYMENT | |
| Describe the hardware and software used for training the model. | | Describe the hardware and software used for deploying the model. | |
| * Write here. Link to additional details or include examples where available / necessary. | | * Write here. Link to additional details or include examples where available / necessary. | |
| Compute Requirements | | | |
| COMPUTE REQUIREMENTS FOR FINE-TUNING\* | | COMPUTE REQUIREMENTS FOR INFERENCE\* | |
| Describe the following compute requirements. Indicate unavailable if necessary. Do not delete any choices. | | Describe the following compute requirements. Indicate unavailable if necessary. Do not delete any choices. | |
| Number of Chips [provide details]  Training Time (days) [provide details]  Total Computation (floating pt operations) [provide details]  Measured Performance (TFLOPS/s) [provide details]  Energy Consumption (MWh) [provide details] | | Number of Chips [provide details]  Training Time (days) [provide details]  Total Computation (floating pt operations) [provide details]  Measured Performance (TFLOPS/s) [provide details]  Energy Consumption (MWh) [provide details] | |
| *\*Modeled after Patterson, David, et al. "*[*Carbon emissions and large neural network training.*](https://arxiv.org/abs/2104.10350?fbclid=IwAR1EYBnyvlVhHr0QZWNZ82nXAiu2ThRF1-ROCFExlV3ArUi-AepIan24JUI)*" arXiv preprint arXiv:2104.10350 (2021).* | | | |
|  | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model Characteristics | | | | | |
| MODEL INITIALIZATION | | MODEL STATUS | | MODEL STATS | |
| Describe how the model has been initialized. Include information about if the model trained from random initialization, or fine-tuned from a pre-trained model? | | Is the model static, or retraining on online data? If this model is trained and retrained, please include the update cadence, and the release date for the latest version. | | What is the size of the model? Include attributes like number of weights and layers. | |
| Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. | |
| **Training Epochs** | [provide details] | **Dataset Name** | [provide details] | **Size** | [provide details] |
| **Base Learning Rate** | [provide details] | **Version** | [provide details] | **Weights** | [provide details] |
| **Method** | [provide details] | **Release Date** | [provide details] | **Layers** | [provide details] |
| **Loss** | [provide details] | **Update Cadence** | [provide details] | **Latency** | [provide details] |
| PRUNING | | QUANTIZATION | | DIFFERENTIAL PRIVACY | |
| Is your model pruned? If so, what is the level of sparsity of the deployed model? | | Is your model quantized? If so, what is the bit representation of the deployed model? | | If any, describe the techniques implemented to preserve privacy? | |
| Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. | |
| **Methods** | [provide details] | **Methods** | [provide details] |
| **Structuring** | [provide details] | **Pre-quantized Representation** | [provide details] |
| **Sparsity Level** | [provide details] | **End Bit Representation** | [provide details] |
| **Number of Params at Sparsity** | [provide details] | **Hardware** | [provide details] |
| **Accuracy at Final Sparsity after Training** | [provide details] |  | |
| **Perplexity at Final Sparsity after Training** | [provide details] |
|  |  |
|  | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Data Overview | | | | | |
| TRAINING DATASET SNAPSHOT | | DATASET MAINTENANCE & VERSIONS | | INSTRUMENTATION | |
| Describe the dataset used to train the model. If a requested detail is inapplicable, following guidance on N/A. Include links to additional table(s) with more detailed breakdowns in the caption. | | Is the training data static, or updated/expanded? If so, what is the frequency with which this data is updated? | | What instruments were used to collect or process the data? Describe any notable instrumentation requirements in the collection or preprocessing of data by customizing the table. | |
| Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. | |
| **Dataset Size** | [provide details] | **Current Version** | [provide details] | **Instrumentation Criteria** | |
| **Number of Instances** | [provide details] | **Update Cadence  for Online Data** | [provide details] | **Focal spot size** | [provide details] |
| **Number of Fields** | [provide details] | **Sampling methods** | [provide details] | **Cooling method** | [provide details] |
| **Labeled Classes** | [provide details] | **Validation methods** | [provide details] | **Avg Adult Effective Dose (mSv)** | [provide details] |
| **Number of Labels** | [provide details] | **Processing methods** | [provide details] | **Operational voltage range** | [provide details] |
| **Average labels per instance** | [provide details] | **Annotation methods** | [provide details] |  | |
| **Missing Labels** | [provide details] | **Additional Notes:** Write here. Link to additional details or include examples where available / necessary. | |
| **Additional Notes:** Write here. Link to additional details or include examples where available / necessary. | |
| DATA PRE-PROCESSING | | DEMOGRAPHIC GROUPS | | EVALUATION DATA | |
| Describe any augmentation methods used during pre-processing to attain the requisite format. Are there any criteria that data points must satisfy to be included in the training set? | | Does the data contain any **labeled\*\* groups**, or attributes that suggest demographic group membership? Describe any demographic groups considered when assessing distributions in the data. | | Describe any notable factors about your final test set, including your train/test/dev split, any notable differences between the collection protocols for training & test data. | |
| Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. | |
| **Use /Application** | |
| Training/Eval | [provide details] |
| **Use /Application** | |
| Training/Eval | [provide details] |
|  | |
| *\*\*If there are groups that may be present, but are* ***not labeled*** *in the training data, please note this in the Ethical Considerations section below.* | | | | | |
|  | | | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Evaluation Results | | | |
| Aggregate Evaluation Results | | | |
| Document your aggregate or overall model performance evaluation. | | | |
| EVALUATION PROCESS | | EVALUATION RESULTS | |
| Describe any notable factors in your process for evaluating your model’s overall performance. | | Summarize and link to evaluation results for this analysis. | |
| **Metrics:** Write here. Link to additional details or include examples where available / necessary.  **Evaluation Set:** Write here. Link to additional details or include examples where available / necessary.  **Process:** Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. | |
| Subgroup Evaluation Results | | | |
| Document your disaggregated (e.g. fairness) evaluation. Duplicate this section (subgroup, evaluation process and data, evaluation results) for each subgroup evaluated. | | | |
| SUBGROUP EVALUATED | EVALUATION PROCESS & DATA | | EVALUATION RESULTS |
| Which subgroup was evaluated? | Describe any notable factors in your process for disaggregated or sliced evaluation of model performance. Please include any assumptions made when disaggregating the data. | | Are there any known and preventable failures about this model? |
| Write here. Link to additional details or include examples where available / necessary. | Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. |
| Fairness Evaluation Results | | | |
| FAIRNESS CRITERIA | FAIRNESS METRICS & BASELINE | | FAIRNESS RESULTS |
| How did you define fairness? Describe the target fairness criteria you hoped to satisfy or optimize for before launch. | Describe the metrics and the baseline for fairness against which you present your fairness results and how they are calculated. | | Describe the results of your fairness analysis. Include any specific callouts or points that you would want to highlight for readers. |
| Write here. Link to additional details or include examples where available / necessary. | Write here. Link to additional details or include examples where available / necessary. | | Write here. Link to additional details or include examples where available / necessary. |
|  | | | |

|  |  |  |
| --- | --- | --- |
| Model Usage & Limitations | | |
| SENSITIVE USE | LIMITATIONS | ETHICAL CONSIDERATIONS & RISKS |
| Are there any use cases where deployment of this model would be considered sensitive? | What factors might limit the performance of the model? What conditions must be satisfied to use the model? | What ethical factors did the model developers consider? Were any risks identified? What mitigations or remediates were undertaken? Where possible, link to additional documents. |
| **Application:** Write here. Link to additional details or include examples where available / necessary.  **Pre-requisite training:** Write here. Link to additional details or include examples where available / necessary. | **Input conditions:** Write here. Link to additional details or include examples where available / necessary.  **Output Caveats:** Write here. Link to additional details or include examples where available / necessary. | **Research & Development:**  Write here. Link to additional details or include examples where available / necessary.  **Deployment:**  Write here. Link to additional details or include examples where available / necessary. |
|  | | |

###### 

|  |  |  |
| --- | --- | --- |
| Terms of ArtConcepts and Definitions referenced in this Model Card | | |
| ✏️ Use this space to include the expansions and definitions of any acronyms, concepts, or terms of art used across the Model Card. Use standard definitions where possible (e.g. [MLCC Glossary](https://developers.google.com/machine-learning/glossary)). Include the source of the definition where indicated. If you are using an interpretation, adaptation, or modification of the standard definition for the purposes of your Model Card or model, include your interpretation as well. | | |
| [TERM OF ART] | [TERM OF ART] | [TERM OF ART] |
| Definition: <write here>  Source: <write and link>  Interpretation: <write here> | Definition: <write here>  Source: <write and link>  Interpretation: <write here> | Definition: <write here>  Source: <write and link>  Interpretation: <write here> |
| [TERM OF ART] | [TERM OF ART] | [TERM OF ART] |
| Definition: <write here>  Source: <write and link>  Interpretation: <write here> | Definition: <write here>  Source: <write and link>  Interpretation: <write here> | Definition: <write here>  Source: <write and link>  Interpretation: <write here> |
| [TERM OF ART] | [TERM OF ART] | [TERM OF ART] |
| Definition: <write here>  Source: <write and link>  Interpretation: <write here> | Definition: <write here>  Source: <write and link>  Interpretation: <write here> | Definition: <write here>  Source: <write and link>  Interpretation: <write here> |
| [TERM OF ART] | [TERM OF ART] | [TERM OF ART] |
| Definition: <write here>  Source: <write and link>  Interpretation: <write here> | Definition: <write here>  Source: <write and link>  Interpretation: <write here> | Definition: <write here>  Source: <write and link>  Interpretation: <write here> |
|  | | |

|  |  |
| --- | --- |
| Reflections on the Model | |
| ✏️ Use this space to include any additional information about the model that has not been captured by the Model Card. | |
| [Title] | Write notes here |
| [Title] | Write notes here |
| [Title] | Write notes here |
|  | |