

# Simple template

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# Install tex and texstudio

- First, visit latex install cite(<https://www.latex-project.org/get/>).
- If the download is complete, install texstudio (<https://www.texstudio.org/>).

# Include graphics

- Notice that your image file **must be** with the .tex file you want to compile.

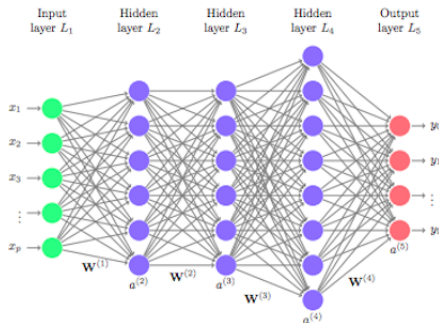


Figure: Deep learning structure

- It's even better if you put a caption on it. Figure 1 shows a deep learning structure.

# Make tables

- You can draw a table easily by referring to the following address.  
(<https://www.tablesgenerator.com/>)

**Table:** Averages and standard errors (in parentheses) of RMSE and MAE values (all values multiplied by  $10^3$ ) based on 100 samples for SVQR and QSS

Indices	Case 1		Case 2	
	SVQR	QSS	SVQR	QSS
$\tau = 0.1$				
RMSE	249.3 (1.13)	299.3 (1.34)	231.6 (1.30)	310.1 (0.93)
MAE	157 (0.88)	170.8 (0.93)	128.6 (0.71)	155.7 (0.72)
$\tau = 0.5$				

# Make equations

- Assume  $\sum(X_{i,n} - \bar{X})/(\sum(X_{i,n} - \bar{X})^2) := w_{i,n}$  and  $Z_{i,n} \stackrel{ind}{\sim} N(0, \sigma_i^2)$ .
- Then by Lindeberg's condition,

$$\frac{1}{\sum_{i=1}^n \sigma_i^2} \sum_{i=1}^n E \left[ w_{i,n}^2 Z_{i,n}^2 I \left( |w_{i,n} Z_{i,n}| > \epsilon \sqrt{\sum_{i=1}^n \sigma_i^2} \right) \right] \quad (1)$$

$$\leq \frac{1}{\sum_{i=1}^n \sigma_i^2} \max_{1 \leq i \leq n} w_{i,n}^2 \max_{1 \leq i \leq n} E(Z_{i,n}^2) \rightarrow 0 \quad (2)$$

- Also  $E(\hat{\beta}_x) = \beta_x$  and  $V(Y_{i,n}) = \sigma^2$ .
- Thus, the least square slope estimator( $\hat{\beta}_x$ ) is asymptotically normal.
- And (iii), (iv) do not converge asymptotically normal by below.

# Referencing article

- First visit google scholar cite(<https://scholar.google.com/>)
- Then click the "" icon.

The screenshot shows the Google Scholar search results for the query "adam optimization". The search bar at the top contains the text "adam optimization" and a magnifying glass icon. Below the search bar, the word "Articles" is displayed with a blue diamond icon, and the text "About 1,680,000 results (0.04 sec)" is shown. On the left side, there are filters for "Any time", "Since 2019", "Since 2018", "Since 2015", and "Custom range...". Below these, there are sorting options: "Sort by relevance" and "Sort by date". There are also checkboxes for "Include patents" and "Include citations", and a "Create alert" button. The search results are listed in three rows. Each row includes the article title, authors, a brief abstract, and a link to the full text (PDF). The first result is "Adam: A method for stochastic optimization" by D.P. Kingma and J. Ba, published in arXiv preprint arXiv:1412.6980, 2014. The second result is "Incorporating nesterov momentum into adam" by T. Dozat, published in 2016 on openreview.net. The third result is "On optimization methods for deep learning" by Q.V. Le, J. Ngiam, A. Coates, and A. Lahiri, published in the Proceedings of the 28th ICML, 2011, on dl.acm.org.

Google Scholar

adam optimization

Articles

About 1,680,000 results (0.04 sec)

Any time  
Since 2019  
Since 2018  
Since 2015  
Custom range...

Sort by relevance  
Sort by date

☒ Include patents  
☒ Include citations

☒ Create alert

**Adam: A method for stochastic optimization** [PDF] arxiv.org  
D.P. Kingma, J. Ba - arXiv preprint arXiv:1412.6980, 2014 - arxiv.org  
We introduce **Adam**, an algorithm for first-order gradient-based **optimization** of stochastic objective functions, based on adaptive estimates of lower-order moments. The method is straightforward to implement, is computationally efficient, has little memory requirements, is ...  
☆ 99 Cited by 35318 Related articles All 16 versions

**Incorporating nesterov momentum into adam** [PDF] openreview.net  
T. Dozat - 2016 - openreview.net  
Timothy Dozat tdozat@stanford.edu ABSTRACT This work aims to improve upon the recently proposed and rapidly popular-ized **optimization** algorithm **Adam** (Kingma & Ba, 2014) ... **Adam**: A method for stochastic **optimization**. arXiv preprint arXiv:1412.6980, 2014 ...  
☆ 99 Cited by 418 Related articles All 5 versions

**On optimization methods for deep learning** [PDF] openreview.net  
Q.V. Le, J. Ngiam, A. Coates, A. Lahiri... - Proceedings of the 28th ..., 2011 - dl.acm.org  
The predominant methodology in training deep learning advocates the use of stochastic gradient descent methods (SGDs). Despite its ease of implementation, SGDs are difficult to tune and parallelize. These problems make it challenging to develop, debug and scale up ...  
☆ 99 Cited by 779 Related articles All 3 versions

Figure: Google scholar page 1.

# Referencing article

- Click the Bibtex file

×

Cite

MLA	Kingma, Diederik P., and Jimmy Ba. "Adam: A method for stochastic optimization." <i>arXiv preprint arXiv:1412.6980</i> (2014).
APA	Kingma, D. P., & Ba, J. (2014). Adam: A method for stochastic optimization. <i>arXiv preprint arXiv:1412.6980</i> .
Chicago	Kingma, Diederik P., and Jimmy Ba. "Adam: A method for stochastic optimization." <i>arXiv preprint arXiv:1412.6980</i> (2014).
Harvard	Kingma, D.P. and Ba, J., 2014. Adam: A method for stochastic optimization. <i>arXiv preprint arXiv:1412.6980</i> .
Vancouver	Kingma DP, Ba J. Adam: A method for stochastic optimization. <i>arXiv preprint arXiv:1412.6980</i> . 2014 Dec 22.

BibTeX

EndNote

RefMan

RefWorks

Figure: Google scholar page 2.



# Referencing article

- Next, scrape the lines

```
@article{kingma2014adam,  
  title={Adam: A method for stochastic optimization},  
  author={Kingma, Diederik P and Ba, Jimmy},  
  journal={arXiv preprint arXiv:1412.6980},  
  year={2014}  
}
```

```
% article  
@article{Adam,  
  title={Adam: A method for stochastic optimization},  
  author={Kingma, Diederik P and Ba, Jimmy},  
  journal={arXiv preprint arXiv:1412.6980},  
  year={2014}  
}  
  
% library  
@inproceedings{sklearn_api,  
  author = {Lars Buitinck and Gilles Louppe and Mathieu Blondel and  
    Fabian Pedregosa and Andreas Mueller and Olivier Scicol and  
    Vlad Niculescu and Peter Breitenhofer and Alexandre Gramfort  
    and Jaques Grobler and Robert Layton and Jake VanderPlas and  
    Arnaud Joly and Brian Holt and Ge{\'e}l Varoquaux},  
  title = {(API) design for machine learning software: experiences from the scikit-learn  
    project},  
  booktitle = {ECML PKDD Workshop: Languages for Data Mining and Machine Learning},  
  year = {2013},  
  pages = {108--122},  
}
```

Figure: Google scholar page 3.

- And make .bib file to your references.
- Notice that your .bib file **must be** with the .tex file you want to compile.

- It is able to solve massive data set problems for using many hidden units in a layer, multiple hidden layers, weight sharing, a variety of colorful forms, and innovative learning algorithms such as Adam([Kingma and Ba(2014)]).



L. Buitinck, G. Louppe, M. Blondel, F. Pedregosa, A. Mueller, O. Grisel, V. Niculae, P. Prettenhofer, A. Gramfort, J. Grobler, R. Layton, J. VanderPlas, A. Joly, B. Holt, and G. Varoquaux.

API design for machine learning software: experiences from the scikit-learn project.

In *ECML PKDD Workshop: Languages for Data Mining and Machine Learning*, pages 108–122, 2013.



D. P. Kingma and J. Ba.

Adam: A method for stochastic optimization.

*arXiv preprint arXiv:1412.6980*, 2014.