Appendix

Keywords:

`anomalies, background, cluster-features, clustering, code-along, code-samples, detailed, limitations, official, parameters, PDF, scholarly, settings, video, sklearn`

AI for Aspiring Researchers. 2020, July 13th. Clustering with K-Means and Birch Algorithm. YouTube. https://youtu.be/YWcDgX_pN-8?t=501

- Nice code-along video that covers both K-means and Birch algorithms.
- Keywords: code-along, code-samples, video

Bashirian, M. (n.d.). *Birch Clustering Clearly Explained*. BIRCH Clustering Clearly Explained. Retrieved April 28, 2022, from https://morioh.com/p/c23e0d680669

- Keywords: clustering

Birch: An efficient hierarchic clustering for large data. Medium. Retrieved April 28, 2022, from https://rafirahim.medium.com/birch-an-efficient-hierarchic-clustering-for-large-data-84f5b9e5c91d

Birch in Data Mining. JavaTPoint. (n.d.). Retrieved April 28, 2022 from https://www.javatpoint.com/birch-in-data-mining

- Helpful explanations about BIRCH.
- Keywords: clustering, detailed

Brownlee, J. (2020, August 20). *10 clustering algorithms with python*. Machine Learning Mastery. Retrieved April 28, 2022, from https://machinelearningmastery.com/clustering-algorithms-with-python/

- Seems pretty good: there is well-commented example code, but there are other algorithms covered too so there isn't really a whole lot specifically on BIRCH but gives a lot of background info on clustering in general
- Keywords: code-samples, clustering

Clustering example with birch method in Python. Clustering Example with BIRCH method in Python. (2019, September 26). Retrieved April 28, 2022, from https://www.datatechnotes.com/2019/09/clustering-example-with-birch-method-in.html

- Very short tutorial that provides a walk-through of the code.
- Keywords: code-along, code-samples

Extensive survey on hierarchical clustering methods in ... (n.d.). Retrieved April 28, 2022, https://www.irjet.net/archives/V3/i11/IRJET-V3I11115.pdf

- There isell-commented example code and information on clustering in general

Gupta, A. (2021, June 3). *Balanced iterative reducing and clustering using hierarchies - birch*. Medium. Retrieved April 28, 2022, from https://medium.com/geekculture/balanced-iterative-reducing-and-clustering-using-hierarchies-birch-1428bb06bb38

- Seems good: Explains history, drawbacks, how it works, parameters
- Keywords: background, parameters, clustering, phases

Kharwal, A. (2021, June 26). *Birch clustering in machine learning*. Data Science | Machine Learning | Python | C++ | Coding | Programming | JavaScript. Retrieved April 28, 2022, from https://thecleverprogrammer.com/2021/03/15/birch-clustering-in-machine-learning/

- This very short blog post provides a very clear and concise example of what BIRCH is, and provides a code along example that clearly illustrates how to use the algorithm with Python.
- Keywords: code-along, code-samples

Lorbeer, B., Kosareva, A., Deva, B., Softic, D., Ruppel, P., & Kupper, A. (2017, October). *Variations on the clustering algorithm BIRCH*. ResearchGate. Retrieved April 29, 2022, from https://www.researchgate.net/profile/Boris-Lorbeer/publication/320494296_Variations_on_the_Clustering_Algorithm_BIRCH/links/5ad75e9b458515c60f573617/Variations-on-the-Clustering-Algorithm-BIRCH.pdf

- Scholarly publication about BIRCH. Very helpful for explaining different aspects of the algorithm.
- Keywords: scholarly, PDF

Maklin, C. (2019, July 14). *Birch clustering algorithm example in Python*. Towards Data Science. Retrieved April 28, 2022, from https://towardsdatascience.com/machine-learning-birch-clustering-algorithm-clearly-explained-fb9838cbeed9

- This is a helpful code-along and algorithm explanation that is blocked by a paywall. The article is included in the resource file as a pdf.
- Keywords: code-along, code-samples, detailed, PDF

Rani, Y., & Rohil, H. (n.d.). *A Study of Hierarchical Clustering Algorithm*. Research India Publications. Retrieved April 28, 2022, from https://www.ripublication.com/irph/ijict_spl/20_ijictv3n10spl.pdf

- This is a study of Clustering Algorithms and has some short segments that very clearly summarize the BIRCH algorithm (section 3.2). The section is two paragraphs long and provides a very high-level summary.
- Keywords: summary, clustering, scholarly, PDF

sklearn.cluster.Birch. scikit learn. (n.d.). Retrieved April 28, 2022, from https://scikit-learn.org/stable/modules/generated/sklearn.cluster.Birch.html

- Scikit-learn Official Documentation
- Keywords: sklearn, official, parameters, code-samples

Verma, Y. (2021, November 11). *Guide to birch clustering algorithm(with python codes)*. Analytics India Magazine. Retrieved April 28, 2022, from https://analyticsindiamag.com/guide-to-birch-clustering-algorithmwith-python-codes/

- Keywords: parameters, cluster-features, code-along

Yousaf, S. (n.d.). *What is the sklearn.cluster.birch() function in python?* Educative. Retrieved April 28, 2022, from https://www.educative.io/edpresso/what-is-the-sklearnclusterbirch-function-in-python

- Parameters are explained and it has good code samples
- Keywords: parameters, code-samples, code-along

ZHANG, T., RAMAKRISHNAN, R., & LIVNY, M. (1997). (tech.). (U. Fayyad, Ed.) *BIRCH: A New Data Clustering Algorithm and Its Applications* (Vol. 1, Ser. Data Mining and Knowledge Discovery, pp. 141–182). Netherlands: Kluwer Academic Publishers. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.325.7171&rep=rep1&type=pdf

- This resource provides an in-depth look at a wide range of aspects related to BIRCH and how the algorithm functions at its base level. Some of the topics covered include:
    - Contributions and Limitations (2.3)
    - Background (3)
    - Anomalies (4.4)
    - Memory Management (5.2)
    - Parameters and Settings (6.3)
- Keywords: limitations, anomalies, parameters, settings, detailed, scholarly, PDF