Bibliography

- [1] Gustafson and Yonemoto. "Beating Floating Point at Its Own Game: Posit Arithmetic". In: *Supercomput. Front. Innov.: Int. J.* 4.2 (June 2017), pp. 71–86. ISSN: 2409-6008. DOI: 10.14529/jsfi170206.
- [2] Steven W. D. Chien, Ivy B. Peng, and Stefano Markidis. "Posit NPB: Assessing the Precision Improvement in HPC Scientific Applications". In: *Parallel Processing and Applied Mathematics*. Ed. by Roman Wyrzykowski et al. Cham: Springer International Publishing, 2020, pp. 301–310. ISBN: 978-3-030-43229-4.
- [3] Peter Lindstrom, Scott Lloyd, and Jeffrey Hittinger. "Universal Coding of the Reals: Alternatives to IEEE Floating Point". In: *Proceedings of the Conference for Next Generation Arithmetic*. CoNGA '18. Singapore, Singapore: Association for Computing Machinery, 2018. ISBN: 9781450364140. DOI: 10.1145/3190339.3190344.
- [4] August Danell Håkansson and Mirja Johnsson. *An error assessment of matrix multiplications on posit matrices*. 2020.
- [5] Simone De Blasio and Fredrik Ekstedt Karpers. Comparing the precision in matrix multiplication between Posits and IEEE 754 floating-points: Assessing precision improvement with emerging floating-point formats. 2020.
- [6] Tony Le and Pontus Karlberg. *Comparing the Accuracy Between IEEE* 754 and Posit Using Matrix Multiplication. 2020.
- [7] Jean-Michel Muller et al. "Introduction". In: *Handbook of Floating-Point Arithmetic*. Cham: Springer International Publishing, 2018, pp. 3–14. ISBN: 978-3-319-76526-6. DOI: 10.1007/978-3-319-76526-6_1.
- [8] John L Gustafson. *The End of Error: Unum Computing*. eng. Chapman & Hall/CRC computational science series. Boca Raton, 2015. ISBN: 9781482239867.

- [9] Brian Randell. "From Analytical Engine to Electronic Digital Computer: The Contributions of Ludgate, Torres, and Bush". In: *Annals of the History of Computing* 4.4 (1982), pp. 327–341. doi: 10.1109/MAHC.1982.10042.
- [10] R. Rojas. "Konrad Zuse's Legacy: The Architecture of the Z1 and Z3". eng. In: *World Patent Information* 19.3 (1997), pp. 240–240. ISSN: 0172-2190.
- [11] Marcello Morelli. *Dalle calcolatrici ai computer degli anni Cinquanta. FrancoAngeli*. 2001, p. 177. ISBN: 9788846428790.
- [12] Raul Rojas. The Z1: Architecture and Algorithms of Konrad Zuse's First Computer. 2014. arXiv: 1406.1886 [cs.AR].
- [13] David G Hough. "The IEEE Standard 754: One for the History Books". eng. In: *Computer (Long Beach, Calif.)* 52.12 (2019), pp. 109–112. ISSN: 0018-9162.
- [14] E. Ternovoy et al. "Comparative Analysis of Floating-Point Accuracy of IEEE 754 and Posit Standards". In: 2020 IEEE Conference of Russian Young Researchers in Electrical and Electronic Engineering (EICon-Rus). 2020, pp. 1883–186. DOI: 10.1109/EIConRus49466.2020.9039521.
- [15] Zachariah Carmichael et al. "Deep Positron: A Deep Neural Network Using the Posit Number System". In: 2019 Design, Automation Test in Europe Conference Exhibition (DATE). 2019, pp. 1421–1426. DOI: 10.23919/DATE.2019.8715262.
- [16] "ISO/IEC/IEEE International Standard Floating-point arithmetic". In: *ISO/IEC 60559:2020(E) IEEE Std 754-2019* (2020), pp. 1–86. DOI: 10.1109/IEEESTD.2020.9091348.
- [17] J.L Gustafson et al. *Posit Standard Documentation*. 2018. url: https://820/posithub.org%20/docs/posit_standard.pdf.
- [18] Varun Gohil et al. "Fixed-Posit: A Floating-Point Representation for Error-Resilient Applications". In: *IEEE Transactions on Circuits and Systems II: Express Briefs* (2021), pp. 1–1. DOI: 10.1109/TCSII. 2021.3072217.
- [19] Jinming Lu et al. "Evaluations on Deep Neural Networks Training Using Posit Number System". eng. In: *IEEE transactions on computers* 70.2 (2021), pp. 174–187. ISSN: 0018-9340.

- [20] Marco Cococcioni et al. "Fast Approximations of Activation Functions in Deep Neural Networks when using Posit Arithmetic". In: *Sensors* 20.5 (2020). ISSN: 1424-8220. DOI: 10.3390/s20051515.
- [21] William Ford. "Chapter 6 Orthogonal Vectors and Matrices". In: *Numerical Linear Algebra with Applications*. Ed. by William Ford. Boston: Academic Press, 2015, pp. 103–118. ISBN: 978-0-12-394435-1. DOI: https://doi.org/10.1016/B978-0-12-394435-1.00006-5.

Appendix A Reference code

https://github.com/it4e/positeval