Neural Networks and Deep Learning

Neural Networks and Deep Learning is a free online book. The book will teach you about:

- Neural networks, a beautiful biologically-inspired programming paradigm which enables a computer to learn from observational data
- Deep learning, a powerful set of techniques for learning in neural networks

Neural networks and deep learning currently provide the best solutions to many problems in image recognition, speech recognition, and natural language processing. This book will teach you many of the core concepts behind neural networks and deep learning.

For more details about the approach taken in the book, see here. Or you can jump directly to Chapter 1 and get started.

Neural Networks and Deep Learning
What this book is about
On the exercises and problems

- Using neural nets to recognize handwritten digits
- ► How the backpropagation algorithm works
- Improving the way neural networks learn
- A visual proof that neural nets can compute any function
- Why are deep neural networks hard to train?
- Deep learning
 Appendix: Is there a simple algorithm for intelligence?
 Acknowledgements
 Frequently Asked Questions

If you benefit from the book, please make a small donation. I suggest \$5, but you can choose the amount.



Alternately, you can make a donation by sending me Bitcoin, at address

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Thanks to all the supporters who made the book possible, with

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Resources

Michael Nielsen on Twitter
Book FAQ
Code repository
Michael Nielsen's project
announcement mailing list
Deep Learning, book by Ian
Goodfellow, Yoshua Bengio, and
Aaron Courville
cognitivemedium.com



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