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### Deep Pink,<sup>[1]</sup>

an experimental [open source chess engine](#) by [Erik Bernhardsson](#) written in [Python](#) as an attempt to [learn](#) and play chess. It applies [negamax alpha-beta](#) and a [deep neural network](#) as [evaluation function](#), using [Theano](#)<sup>[2]</sup>, [python-chess](#), and [Sunfish](#)<sup>[3]</sup>. The input representation seems similar to [Octavius](#) with 12x64 nodes, not feeding in [side to move](#), [castling rights](#), and [en passant](#) target square. The first hidden layer has 2048 neurons as well. Bernhardsson used a [GPU](#) instance to train the net with 100M games for about four days using [stochastic gradient descent](#) with [Nesterov](#)<sup>[4]</sup> momentum<sup>[5] [6] [7]</sup>.

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[As the author of sunfish....](#) by [Thomas Ahle](#), December 2, 2014  
[This has been tried many times before, with better-but-still-lackluster results....](#) by halfcat, [Hacker News](#), December 2, 2014
- [Deep learning for... chess \(addendum\)](#) by [Erik Bernhardsson](#), December 8, 2014
- [ÿhat | Deep Learning for ... Chess](#) by [Erik Bernhardsson](#), February 02, 2017
- [Deep Pink: a chess engine using deep learning](#) by [Chao Ma](#), [CCC](#), February 05, 2017

## External Links

- [GitHub - erikbern/deep-pink: Deep Pink is a chess AI that learns to play chess using deep learning](#)

## References

1. [^](#) color: #ff1493; [Deep Pink - Shades of pink from Wikipedia](#)
2. [^](#) [Welcome — Theano 0.7 documentation](#)
3. [^](#) [erikbern/deep-pink · GitHub](#)
4. [^](#) [Yurii Nesterov from Wikipedia](#)
5. [^](#) [Deep learning for... chess](#) by [Erik Bernhardsson](#), November 29, 2014
6. [^](#) [ORF523: Nesterov's Accelerated Gradient Descent](#) by [Sébastien Bubeck](#), [I'm a bandit](#), April 1, 2013
7. [^](#) [Nesterov's Accelerated Gradient Descent for Smooth and Strongly Convex Optimization](#) by [Sébastien Bubeck](#), [I'm a bandit](#), March 6, 2014

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