

Introduction to Deep Neural Networks

GPU computing perspective

Yuhuang Hu

Chu Kiong Loo

Advanced Robotic Lab

Department of Artificial Intelligence

Faculty of Computer Science & IT

University of Malaya

DUGUYUE100@GMAIL.COM

CKLOO.UM@UM.EDU.MY

Abstract

Deep Learning (DL) might be *the* hottest topic right now in Machine Learning and Artificial Intelligence community. The successful stories of DL in weak AI problems are all over the news (especially in recent 2 years). It is critical to understand Deep Learning concepts while one is building up state-of-art intelligent software.

Keywords: Deep Learning, Deep Neural Networks, GPU computing

1. Getting Started

1.1 Basics in machine learning

1.2 Preprocessing

1.3 Gradient-based optimization

2. Classification

2.1 What is classification?

2.2 Logistic regression and softmax regression

2.3 Linear support vector machine

3. Multilayer Perceptron

4. Auto-encoders

5. Convolutional Neural Networks

Convolutional Neural Networks (CNNs/ConvNets) is a variation of MLP networks.

6. Long-short Term Memory

7. General Discussion

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