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Deep Learning Systems Note

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Contents

1. Introduction

1.1. Aim

- An introduction to the functioning of modern deep learning systems.
- Learn the underlying concepts of modern deep learning systems.
  - Automatic differentiation
  - Neural network architectures
  - Optimization
  - Efficient operations on systems like GPUs
- Build a deep learning library from scratch.

1.2. Why studying DL Systems?

1. To build deep learning systems.
2. To use existing systems more effectively.
3. Deep learing systems are fun!

1.3. Elements

- **Compose** multiple tensor operations to build modern machine learning models.
- **Transform** a sequence of operations (automatic differentiation).
- **Accelerate** computation via specialized hardware.
- **Extend** more hardware backends, more operators.