Table of Contents

Part 1: Part I: Brains & Inspiration

Intro

Neuro Foundations

Spatial Navigation

Perception Pipeline

Part 2: Part II: Brains Meet Math & Data

Brain Networks

Neurostimulation

Information Theory

Data Science Pipeline

Part 3: Part III: Learning Machines

MI Foundations

Deep Learning

Sequence Models

Part 4: Part IV: Frontier Models

Large Language Models

Multimodal Models

Part 5: Part V: Ethics & Futures

Ethical Ai

Future Directions

Part 6: Part VI: Advanced Applications

Bci Human Ai Interfaces

Neuromorphic Computing

Cognitive Neuro DI

Case Studies in NeuroAl

Interactive NeuroAl Case Studies

Al-Assisted Learning with Jupyter Al

Creating Presentations with RISE

Ai For Neuro Discovery

Embodied Ai Robotics

Quantum Computing Neuroai

Lifelong Learning

Part 7: Appendices

Glossary

Math Python Refresher

Dataset Catalogue

Colab Setup