Wright State University

CORE Scholar

Winter 2005

CS 765-01: Foundations of Neurocomputation

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Repository Citation

CS 765
Foundations of Neurocomputation

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Office Hours:	Monday, Wednesday 5:30-6:00 PM and by appointment

Course Objectives: This course is designed to help you develop a solid understanding of neural network algorithms and architectures. At the end of this course you should be able to read and critically evaluate most neural network papers published in major journals, (e.g. IEEE Transaction on Neural Networks, Neural Networks, and Neural Computation). In addition, you should be able to implement a broad range of network architectures and learning algorithms for a variety of applications.

Prerequisites: Familiarity with multivariate calculus, linear algebra and matrix algebra.

Familiarity with algorithmic complexity concepts and programming.

Textbooks:

Required: Neural Networks A Comprehensive Foundation by Simon Haykin,Prentice-Hall, 1999

Recommended: If you are not familiar with Matlab, obtain a book on programming in Matlab such as:

Mastering Matlab 7, by D. Hanselman and B. Littlefield, Prentice-Hall, 2005

Workload:

2-3 Programming / Homework Exercises	30%
1 Course Project / Presentation	30%
1 Midterm Examination	20%
1 Final Examination	20%

Topics:

Introduction to artificial neural networks	Ch. 1
Overview of principles and methods of neural computing	Ch. 2
Single layer networks	Ch. 3
Multilayer networks	Ch. 4
Radial-Basis function networks	Ch. 5
Self-organizing maps and vector quantization	Ch. 9
Neurodynamics	Ch. 14
Recurrent networks	Ch. 15
Applications of Neural Networks	
Project Presentations	