Instructors:
Richard Baraniuk, richb@rice.edu, Duncan Hall 2028, x5132
Office hours: by appointment

Xaq Pitkow, xaq@rice.edu, Duncan Hall 2046, x3292
Office hours: by appointment

Ankit Patel, abp4@rice.edu, Duncan Hall 2050, 713.348.3293
Office hours: by appointment

Teaching Assistants:
Minh Nguyen, mn15@rice.edu

Course Schedule:
Credits: 3
Friday, 1-3:30 PM, George R Brown W211
16 January 2015: Orientation
23 January 2015: Student Paper Presentations Begin
Early May 2015: Group Project Presentation

Class participation:
Students are expected to attend, present papers, prepare a summary each week and complete a major group project.

Grading:
Class participation (15%)
Paper presentations (30%)
Paper summaries (prepared each week, 15%)
Group project (40%)

Course Description:
This course will explore deep learning, multistage machine learning methods that learn representations of complex data. Over the past several years, thanks for the development of new training rules, massive computing capabilities, and enormous training data sets, deep learning systems have redefined the state-of-the-art in object identification, face recognition, and speech recognition. Examples of modern tools include; Facebook’s Deep Face and Google Deep Mind.

Topics to be discussed include: Deep learning architectures, training deep learning systems, convolutional neural networks (CNN’s), and applications.
**Prerequisites:**
ELEC 531 and ELEC 533
The course is open to graduate students from any department with some background in statistics or machine learning.

**Course Status:**
On-going

**Course Websites:**
http://dsp.rice.edu/courses/elec631

**Course Goals and Objectives:**
This is a “reading course”, meaning that students will select, read and present classic and recent papers from technical literature to the rest of the class in a lively debate format. Discussions aim at identifying common themes and important trends in the field. Students will also get hands on experience with deep learning software and complete a major group project.

**Course Outcomes:**
Deep understanding of deep learning in machine learning and its relationship to computational neuroscience.

**Honor Code Policy:**

*General Assignments:*
You may use your text, course notes, and any other reference materials. You may discuss problems, general strategies, or algorithms with other people (in the course or not). You should understand and be able to recreate any part of the solutions on your own.

*Exam Honor Code:*
Complete all exams individually.

*Homework Honor Code:*
Complete homework assignments individually. You may freely use course notes or papers presented for the assignments. You may discuss and compare ideas on the assignments, but each student must write up solutions individually without resort to copying. Clearly state any assumptions that you make in order to solve the problems and show all your work.

**Students with Disabilities:**
Any student with a disability requiring accommodations in this course is encouraged to contact the instructor after class or during office hours. Additionally, students will need to contact Disability Support Services in the Ley Student Center.

**Updates to the Course:**
Information contained in this course syllabus, other than the absence policies, may be subject to change with reasonable advance notice as appropriate.