# ELEC/COMP 576: Introduction to Deep Learning

Rice Electrical & Computer Engineering and Baylor College of Medicine Neuroscience

## Schedule and Syllabus

Note: This syllabus is subject to change based on the needs of the class

| Event Type | Date | Description | Course Material |
|---|---|---|---|
| Lecture | Aug 25 | Overview of Deep Learning Applications | [slides F20] |
| Lecture | Aug 25, Sep 1 | History of Deep Learning<br><br>Assignment #0 available | [slides F20] |
| Lecture | Sep 1 | Stochastic Gradient Descent, Neural Networks, & Backpropagation | [slides F20] |
| Lecture | Sep 8 | Neural Networks & Backpropagation (cont.)<br><br>Asssigment #0 due<br><br>Assignment #1 available | [slides F20] |
| Lecture | Sep 15 | Neural Networks & Backpropagation (cont.)<br><br>Introduction to ConvNets (architectures – AlexNet, VGG, Inception, ResNet, DenseNet – loss surface,…) | [slides F20]<br><br>[slides F20] |

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| | | Guest Lecture: Erik Enquist, Rice RCSG | |
| Lecture | Sep 22 | Introduction to ConvNets (architectures – AlexNet, VGG, Inception, ResNet, DenseNet – loss surface,…) (cont.)<br><br>Training ConvNets | [slides F20]<br><br>[slides F20] |
| Lecture | Sep 29 | Species of ConvNets | [slides F20] |
| Lecture | Oct 6 | Understanding and Visualizing Convnets &<br><br>Introduction to Recurrent Neural Networks<br><br>Assignment #1 due | [slides F20] |
| Lecture | Oct 13 | Recurrent Neural Networks Applications<br><br>Assignment #2 available | [slides F20] |
| Lecture | Oct 20 | Recurrent Neural Networks Applications (cont.) | [slides F20] |
| Lecture | Oct 27 | Recurrent Neural Networks Applications (cont.)<br><br>Assignment #2 due | [slides F20] |
| Lecture | Nov 3 | Deep Reinforcement Learning<br><br>Understanding Neural Nets as Splines<br><br>Final Project Proposal due | [slides F20]<br><br>[slides F20] |
| Lecture | Nov 10 | Understanding Neural Nets as Splines (cont.)<br><br>Deep Reinforcement Learning<br><br>Proposal reviews available | [slides F20]<br><br>[slides F20] |
| Lecture | Nov 17 | Guest Lecture: Randall Balaestriero | |

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| | | Spline Operators and Deep Networks |
| Lecture | Nov 24 | Thanksgiving – No class |
| Final Project | Dec 1 | Project Presentation |
| | Dec 15, 23:59 | Project Report Due |