**Industrial Engineering**

IE 534  **Deep Learning**  credit: 4 hours.

This course provides an introduction to neural networks and recent advances in deep learning. Topics include training and implementation of neural networks, convolution neural networks, recurrent neural networks (LSTM and gated recurrent), residual networks, reinforcement learning, and Q-learning with neural networks. A part of the course will especially focus on recent work in deep reinforcement learning. The course will also cover deep learning libraries (e.g., Chainer, Tensorflow) and how to train neural networks using GPUs and GPU clusters. 4 graduate hours. No professional credit. Prerequisite: CS 446 or equivalent. Graduate students only.

<table>
<thead>
<tr>
<th>CRN</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>70295</td>
<td>Lecture</td>
<td>D</td>
<td>08:00 AM - 09:20 AM</td>
<td>TR</td>
<td>1404 - Siebel Center for Comp Sci</td>
<td>Sirignano, J</td>
</tr>
</tbody>
</table>

Credit Hours: 4 hours
Restricted to Graduate - Urbana-Champaign.

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**Class Schedule - Fall 2018**

**Industrial Engineering**

IE 534  **Deep Learning**  credit: 4 hours.