

Deep Learning Architectures

- **Research Problem & Questions (you can also come up with your own)**
 - BachProj: What kind of new deep learning architectures can we create?
- **Summary**
 - Deep learning architectures are in their infancy. We are at a point in time where we can try out new architectures which may have significant contributions to the machine learning research community. The general idea is learn the well known architectures and then design several new ones and evaluate with the standard test sets.
- **Advisors:**
 - Dr. Michael Lew - mlew@liacs.nl
 - Dr. Erwin Bakker
- **Background preferred:**
 - image processing, C, C++

Deep Learning Visualization

- **Research Problem & Questions (you can also come up with your own)**
 - BachProj: Create a 3D Tensorflow visualization program (Ubuntu)
- **Summary**
 - Most deep learning researchers have no idea what is happening in the 10-200 million neurons in a deep neural network. The idea is to show the internals of how these systems work in a 3D real-time system.
- **Advisors:**
 - Dr. Michael Lew - mlew@liacs.nl**
 - Dr. Erwin Bakker**
- **Background preferred:**
 - image processing, C, C++

Deep Learning Evolution

- **Research Problem & Questions (you can also come up with your own)**
 - BachProj: Evolve fundamental representations in a deep network
- **Summary**
 - Many fundamental representations in the human brain have evolved over thousands (possibly millions) of years. It is possible these are evolved through optimization. In this project you will train different deep networks for particular contexts in fundamental computer vision and show how the different layers evolved over the training process.
- **Advisors:**
 - Dr. Michael Lew - mlew@liacs.nl**
 - Dr. Erwin Bakker**
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