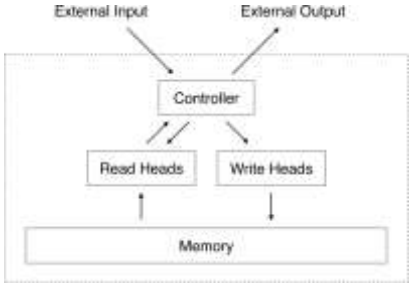
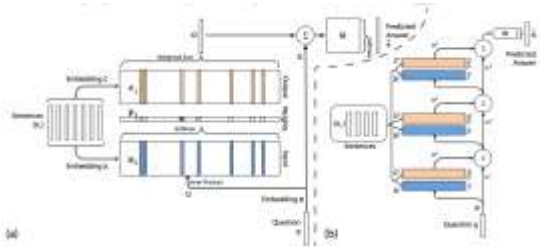
Concluding Remarks

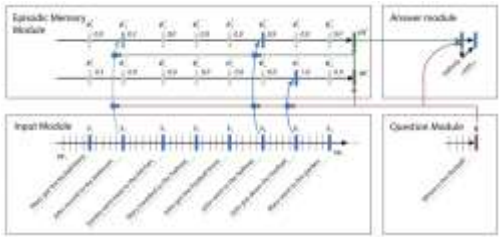
Future of Deep Learning

Memory Networks

- Neural architectures that combine long-term memory with learning component that can read and write to it
  - Neural Turing Machines (Graves et al., 2014)
  - End-To-End Memory Networks (Sukhbaatar et al., 2015)
  - Dynamic Memory Networks (Kumar et al., 2016)

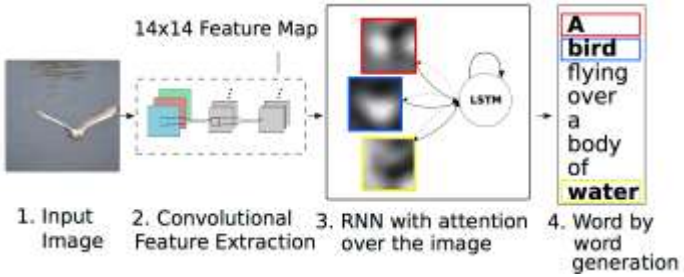






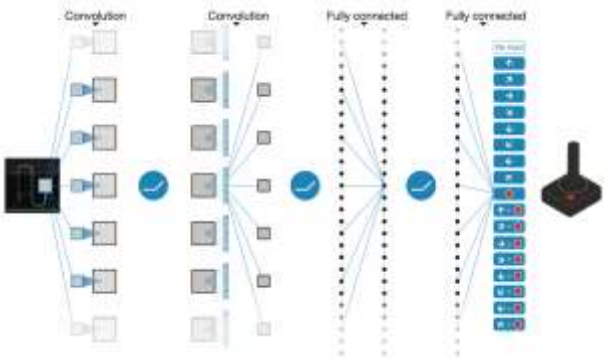
Spatial Attention Models

- Network models that sequentially focus on a subset of the input, process it, and then shifts its focus to another part of the input.
  - Deep Recurrent Attentive Writer (DRAW)
    (Gregor et al., 2015)
  - Show, Attend and Tell
    (Xu et al., 2015)



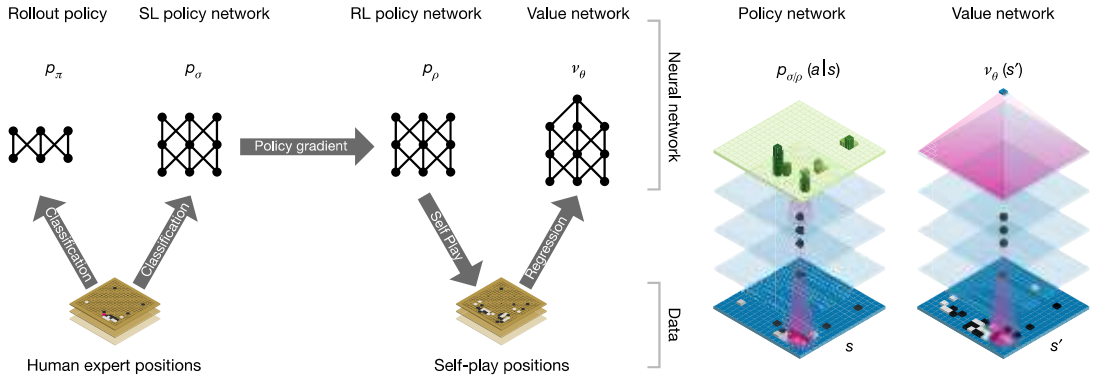
Deep Reinforcement Learning

- Using deep networks to represent value function/policy/model and optimize them in an end-to-end fashion
  - Deep Q-network (DQN) (Mnih et al., 2015)
  - AlphaGo (Silver et al., 2016)




LETTER

Human-level control through deep reinforcement learning




ARTICLE

Mastering the game of Go with deep neural networks and tree search

https://www.edge.org/response-detail/26794

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David Dalrymple
Research affiliate, MIT Media Lab

Differentiable Programming

Over the past few years, a raft of classic challenges in artificial intelligence which had stood unsolved for decades were conquered, almost without warning, through an approach long disparaged by AI purists for its "statistical" flavor: it's essentially about learning probability distributions from large volumes of data, rather than examining humans' problem-solving techniques and attempting to encode them in executable form. The formidable tasks it has solved range from object classification and speech recognition, to generating descriptive captions for photos and synthesizing images in the style of famous artists—even guiding robots to perform tasks for which they were never programmed!

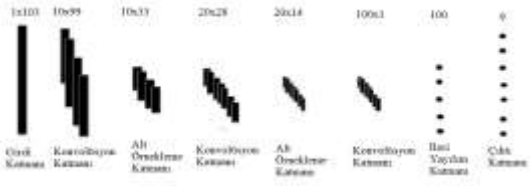
Deep Learning Research at

HACETTEPE UNIVERSITY COMPUTER VISION LAB

&

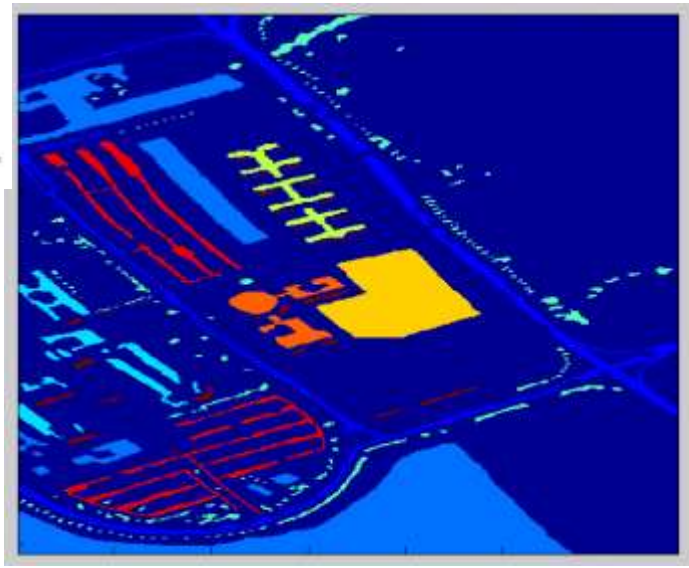
PARRSLAB

Hyperspectral Data Classification using Deep CNN

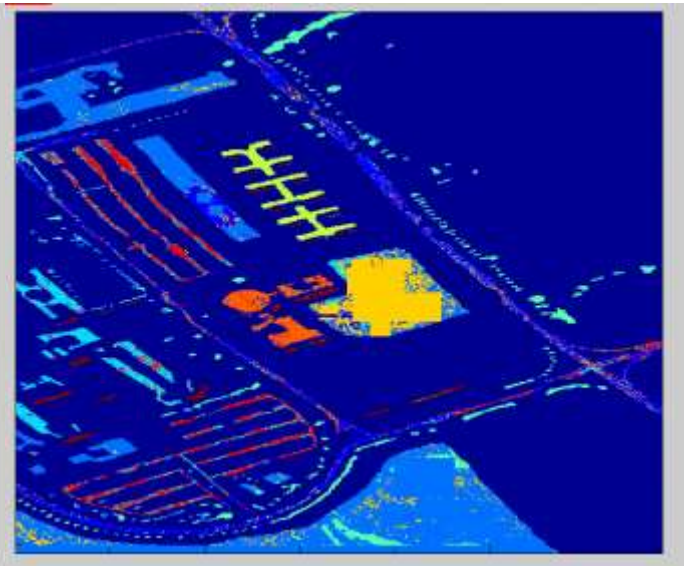


Proposed CNN architecture

Ground Truth



Classification Result



- Mesut Salman and S. Esen Yuksel

16 May 2016
13:30-15:00 – Computer Vision I (Kilimli Salonu)

Summarization of Image Collections

Images are represented with deep features.

- Given a personal image collection, we obtain its visual summary using intrinsic image properties.
- Summarizing Personal Image Collections withIntrinsic Properties
  17 May 2016 10:30-12:30 – Special Session 7
  (Dilaver Salonu)

Image Captioning in Turkish

Images are represented with deep features.

- For a given image, we generate its Turkish description in an automatic manner.
- TasvirEt: A Benchmark Dataset for Automatic Turkish Description Generation from Images 18 May 2016 13:30-15:00 – Computer Vision V (TURKTELEKOM Salonu)