

Understanding learning in humans and deep networks (Christ Summerfield)

Cognitive development only on specific periods of life

CRITICAL PERIODS → STRUCTURED TRAINING → LOSS OF PLASTICITY

→ Spine formation during minimally-guided learning

↳ Formation of new spines on dendrites

→ Second language across life span

↳ apparently the earlier you are exposed to a language, the more you will show some native speaker level

→ Loss of plasticity in NN → dormant unit emerge

↳ Neural pathways become more stable

→ Dimensionality changes over learning

→ Categorization and Switch Tasks

↳ As the learners become "older" or a long life span, it's harder for the network to escape from a pattern he has fallen in

How aging affects cognitive flexibility

Lottery Ticket hypothesis → SGD prunes excessive direction

Off-manifold learning → if the manifold is super solidified is difficult to learn off manifold

Why do curricula work (in biological networks)?

↳ off manifold learning

□ People learn a rule before exception