Semantic Scholar Brings Artificial Intelligence to Neuroscience

First AI-Based Scientific Search Engine Speeds Neuroscience Research Process

SEATTLE (Nov. 11) – Today the Allen Institute for Artificial Intelligence (AI2) announced the launch of its artificial intelligence-based Semantic Scholar search engine (www.semanticscholar.org) for the biomedical research community, focusing initially on neuroscience. Semantic Scholar is the first free semantic search engine designed for scientists and is part of AI2's mission to create "AI for the common good." AI2 is the largest non-profit AI research institute in the U.S.

One of AI's most important and immediate impacts is on scientific and medical research; surfacing the right studies from the right sources is critical to speeding this research. As Paul Allen put it, "Medical breakthroughs should not be hindered by the cumbersome process of searching the scientific literature. My vision for Semantic Scholar is to give researchers more powerful tools to comb through millions of academic papers online, to help them keep up with the explosive growth of science."

Using data mining, natural language processing, and computer vision, Semantic Scholar extracts key academic paper elements like figures, influential citations, and topics including brain region, organism, and cell type in order to source the correct information. Until today, Semantic Scholar focused only on computer science research. Now the scope has widened to include neuroscience, which will be followed rapidly by the full biomedical literature in 2017.

"Semantic Scholar puts AI at the service of the scientific community," said Dr. Oren Etzioni, CEO of AI2. "The brain continues to mystify the scientific and medical research community and harbors some of the diseases that are the most challenging to cure. Our hope is that the field of neuroscience can benefit from AI methods to ensure the best and most relevant studies are easily queried so medical research can move with maximum speed and efficiency."

Semantic Scholar currently searches over 10 million computer science and neuroscience documents, and will cover the full biomedical literature as defined by PubMed in 2017. "For neuroscientists, Semantic Scholar already has substantial advantages over PubMed and Google Scholar; we are collaborating with AI2 to further extend its capabilities," said Christof Koch, President and Chief Scientific Officer of the Allen Institute for Brain Science.

About the Allen Institute for Artificial Intelligence (AI2)

AI2 was founded by Paul Allen in 2014 with the goal of conducting high-impact research and engineering in the field of artificial intelligence, all for the common good. AI2's CEO is Dr. Oren Etzioni, a leading researcher in the field of AI. AI2 employs over 60 top-notch researchers and engineers in Seattle, making it the largest non-profit AI research institute in the U.S.

The Semantic Scholar search results page for the query: "songbird basal ganglia".

Filter Results:

- Field of Study
- Publication Year
- Publication Type
- Author
- Key Phrase
- Publication Venue
- Brain Region
  - Prosencephalon (634)
  - Cerebrum (632)
  - Telencephalon (632)
  - Basal Ganglia (623)
  - Corpus Striatum (347)
  - Cerebral Cortex (326)
  - Diencephalon (305)
  - Brain Stem (265)
  - Thalamus (219)
  - Rhombencephalon (190)
- Cell Type
- Methodology
- Organism

Page 1 — Try your search on Google Scholar — Sort by: Relevance

Incomplete and Inaccurate Vocal Imitation after Knockdown of FoxP2 in **Songbird Basal Ganglia** Nucleus Area X

Sebastian Haesler, Christelle Rochefort, Benjamin Georgi, Pawel Licznerski, Pavel Osten, Constance Scharff · PLoS biology · 2007

The gene encoding the forkhead box transcription factor, FOXP2, is essential for developing the full articulatory power of human language. Mutations of FOXP2 cause developmental verbal dyspraxia (DVD), a speech and language disorder that compromises the fluent production of words and the correct use and comprehension of grammar. FOXP2 patients have… (More)

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Vocal Experimentation in the Juvenile **Songbird** Requires a **Basal Ganglia** Circuit

Bence P Ölveczky, Aaron S Andalman, Michale S Fee · PLoS biology · 2005

Songbirds learn their songs by trial-and-error experimentation, producing highly variable vocal output as juveniles. By comparing their own sounds to the song of a tutor, young songbirds gradually converge to a stable song that can be a remarkably good copy of the tutor song. Here we show that vocal variability in the learning **songbird** is induced by a… (More)

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Organization of the **songbird basal ganglia**, including area X.

Abigail L Person, Samuel D Gale, Michael A Farries, David J Perkel · The Journal of comparative neurology · 2008

Area X is a **songbird basal ganglia** nucleus that is required for vocal learning. Both Area X and its immediate surround, the medial striatum (MSt), contain cells displaying either striatal or pallidal characteristics. We used pathway-tracing techniques to compare directly the targets of Area X and MSt with those of the lateral striatum (LSt) and globus… (More)

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Anatomy of a **songbird basal ganglia** circuit essential for vocal learning and plasticity.

Samuel D Gale, David J Perkel · Journal of chemical neuroanatomy · 2010

Vocal learning in songbirds requires an anatomically discrete and functionally dedicated circuit called the anterior forebrain pathway (AFP). The AFP is homologous to cortico-**basal ganglia**-thalamo-cortical loops in mammals. The **basal ganglia** portion of this pathway, Area X, shares many features characteristic of the mammalian striatum and pallidum,… (More)

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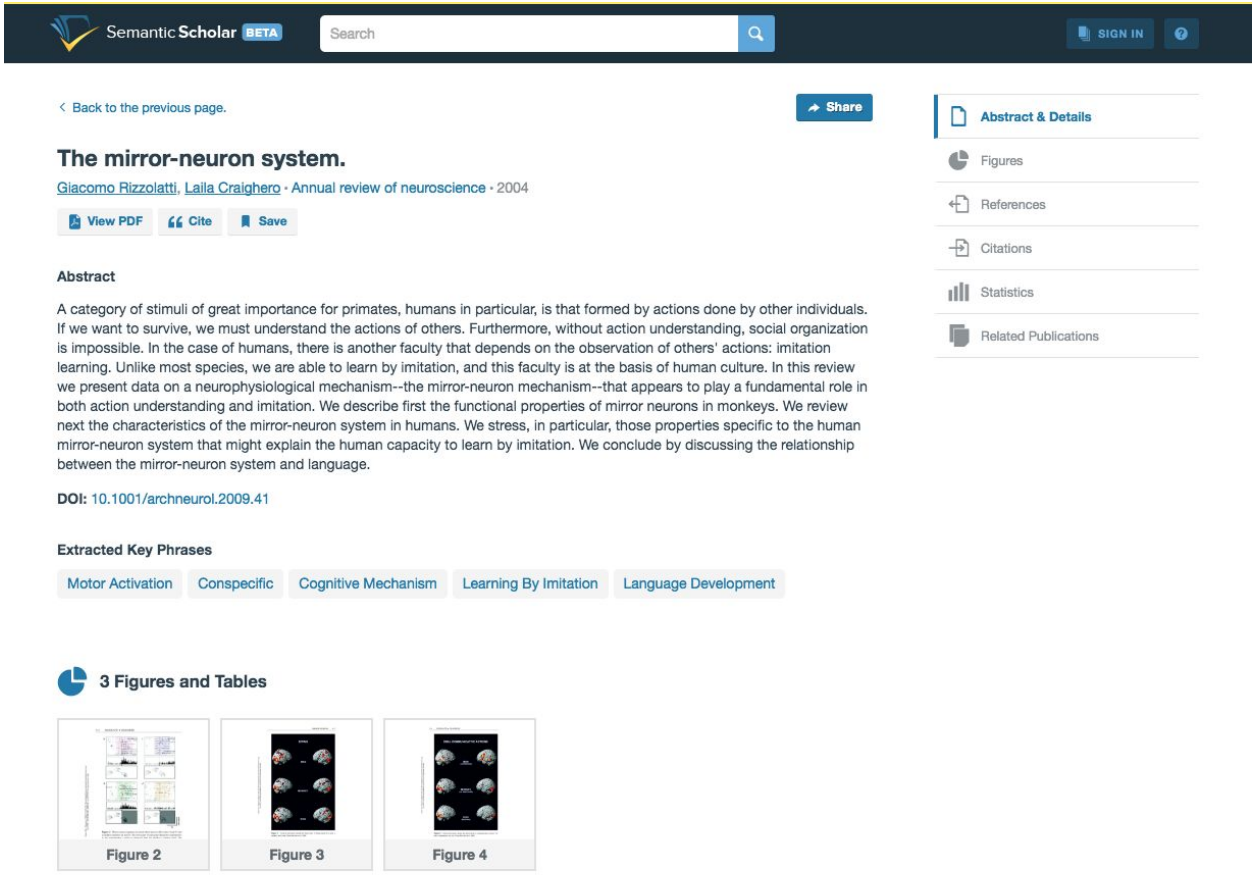
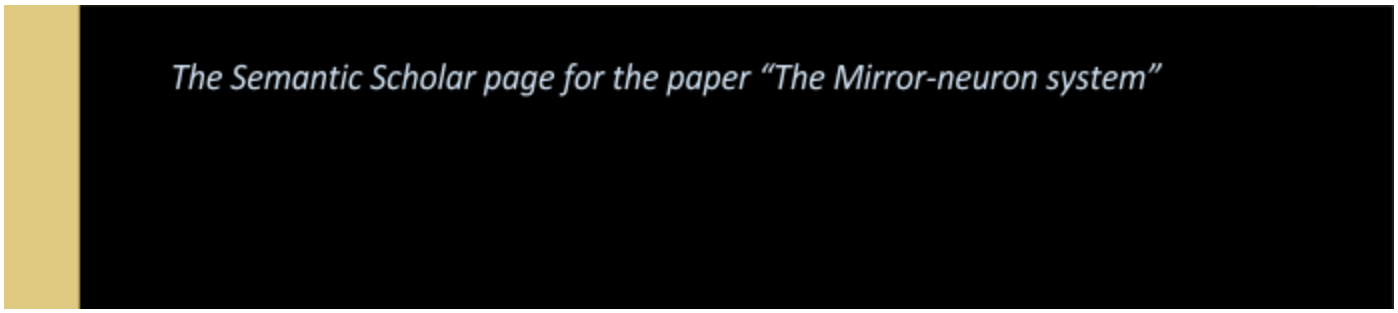
Properties of dopamine release and uptake in the **songbird basal ganglia**.

Samuel D Gale, David J Perkel · Journal of neurophysiology · 2005

Vocal learning in songbirds requires a **basal ganglia** circuit termed the anterior forebrain pathway (AFP). The AFP is not required for song production, and its role in song learning is not well understood. Like the mammalian striatum, the striatal component of the AFP, Area X, receives dense dopaminergic innervation from the midbrain. Since dopamine (DA)… (More)





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