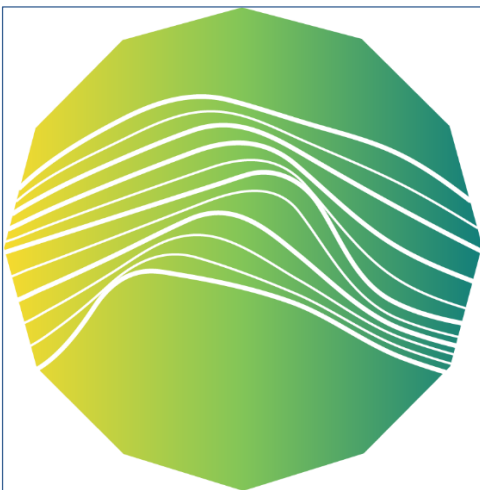*The HBP Calls for Expression of Interest for SGA3*
"High-level neuro-symbolic processing for guidance of goal-directed behaviour"

Call Text

Project Number:	945539	Project Title:	Human Brain Project SGA3

Document Title:	HBP CEoI for SGA3 – High-level neuro-symbolic processing for guidance of goal-directed behaviour – Call Text
Document Filename:	HBP SGA3 CEoI - Neuro-symbolic Processing - Call Text
Dissemination Level:	PU = Public
Abstract:	Calls for Expression of Interest for SGA3, Call Text
Keywords:	Working memory, attention, monitoring, task instructions, learning, distributed symbols, sub-symbolic rules, executive functions, frontal cortex
Target Users/Readers:	Applicants, all interested
Call Publication Date:	5 August 2020
Pre-proposal Submission Deadline:	16 September 2020 17:00 Brussels time
Proposal Submission Deadline:	16 October 2020 17:00 Brussels time
Proposal submission online platform	HBP Open Call Platform
Total Call Budget:	EUR 450,000 Direct Costs. Maximum funding per proposal: EUR 450,000 (PLUS 25% Indirect Costs), one proposal will be selected.
More information:	info@opencalls.humanbrainproject.eu

A major goal of the HBP is to advance our understanding of how biological learning networks enable human cognitive functions. This perspective is pursued by emulating the architecture and operation of the brain that support these functions and applying them to address cognitive problems. This work is characterised by a close collaboration between cognitive neuroscientists, researchers in learning theory, Artificial Intelligence, and neurorobotics. It heavily relies on services provided by the HBP Research Infrastructure (RI).

The present Call for Expressions of Interest (CEoI) aims to integrate expertise of neural network modelling of high-level symbolic processing and working memory to support goal-directed behaviour that will be integrated in developed biologically inspired cognitive architectures.

This CEoI is linked to the HBP's SGA3 Work Package 3 (WP3): "*Adaptive networks for cognitive architectures: from advanced learning to neurorobotics and neuromorphic applications*"[1].

The CEoI targets researchers actively **developing neural network models of working memory and selective attention for temporary information processing and guidance of goal-directed behaviour**. The **networks should be able to learn to perform symbolic-like computations**. Developed modules will be **integrated with other WP3 work/models** to achieve a large-scale modular cognitive architecture that can **perform higher cognitive tasks** that involve cognitive control, basic reasoning, planning and decision making.

The developed working memory, attention and symbol manipulation capabilities will support the embodied WP3 model to **store and follow task instructions**. The work of this Call will be integrated into existing (and further extended) visuo-motor architectures developed in the HBP. Since WP3 focuses on neuroscience-driven modelling, it is **desirable that the architecture and operation of the developed networks would relate to brain structure and function** where possible.

The applicants will be working in close collaboration with HBP Partners, who will provide expertise and training, as well as support to integrate developed network modules in the **co-developed embodied functional reference cognitive architecture**.

The successful applicant(s) will complement the expertise already present within the Project and will build on the developed visuo-motor and cognitive modular network architectures using tools and services provided by WP3 and the HBP RI in conducting the proposed work.

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[1] WP3 summary can be found in document: "HBP SGA3 CEoI for SGA3 Work Plan Structure and Outcome Overview"