

**The HBP Calls for Expression of Interest for SGA3**  
**“Application of visual scene understanding models to robotics**  
**use-cases of industrial relevance”**

**Call Text**

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More information:	<a href="mailto:info@opencalls.humanbrainproject.eu">info@opencalls.humanbrainproject.eu</a>		

This Call for Expression of Interest (CEoI) is for Organisations or groups of Organisations interested in applying techniques in visual scene understanding to robotics applications of industrial relevance.

Within the HBP, efforts are invested in understanding 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. The approach is anchored in a direct relation between investigated cognitive architectures, and a physical reality that allows expression of the cognitive functions considered. 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). Among the different cognitive functions explored, a meaningful number of them find practical applications in a variety of areas.

The successful applicants will engage in close collaboration with HBP Partners who will provide expertise in cognitive neuroscience, learning, AI, and neurorobotics. Techniques and models supporting visual scene understanding functions will be provided by HBP Partners. The successful applicants will actively collaborate with other participants in WP3 towards the co-design of solutions specialised to the considered problem, building upon the aforementioned foundational results achieved in the HBP by end of SGA2. This work will aim to extend functions supported by the developed cognitive architecture to directly address behaviour of the robotic system. Relevant developments will be integrated within the EBRAINS Service offering Category 4 (SC4): Closed-loop AI and robotics. The work considered will integrate the developed models with additional functional building blocks (in perception, control, other relevant algorithmic aspects), in a manner allowing to address concrete robotic problems, necessarily involving visual scene understanding. This may be pursued in numerical simulations, but also, and preferably, on experimental setups (in industrial situations), demonstrating real-world performance of the integrated solution.