2013-14 Princeton Global Scholar
Rava Azeredo da Silveira

Rava Azeredo da Silveira, a leading figure in theoretical neuroscience, embodies the interdisciplinary nature of this emerging field. He began his academic career studying chemistry and physics; now he applies his computational background to the study of neural functions — such as vision, hearing, and memory — at the molecular level, to learn how brain cells extract information from sensory input. His work bridges the gap between theoretical principles and the concrete reality of complex neural systems.

As a Global Scholar at the Princeton Neuroscience Institute, he joins forces with the University's pioneering researchers to chart the complexities of the living, thinking mind.

Azeredo da Silveira's Global Scholar appointment builds on his existing ties with Princeton, forged in 2011-12 when he was the neuroscience institute's first C.V. Starr Visiting Fellow. He spent the year collaborating with Princeton faculty and students in physics, biology, and neuroscience to examine the physiology of the retina and the processing of information by neural systems. He also created and co-taught a graduate course, "Computation and Coding in Microcircuits: The Retina and Beyond," and supervised student exchanges between Princeton and his home institution, the École Normale Supérieure (ENS) in Paris.

At ENS he is based in the Department of Physics and affiliated with the Department of Cognitive Studies, where he has developed and taught two courses. Azeredo da Silveira is also a researcher at the Centre National de la Recherche Scientifique, the largest research organization in Europe. Before moving to Paris, he earned his Ph.D. in theoretical physics from the Massachusetts Institute of Technology and was a Junior Fellow in the Harvard Society of Fellows. His work has been published in Science, Nature Neuroscience, and Physical Review Letters, among other peer-reviewed journals. He is regularly invited to lecture at international meetings and research schools, and works with many experimental groups in American and European institutions.

At Princeton, Azeredo da Silveira will co-teach his graduate course; design and co-teach a new course for undergraduates; co-author a book on visual processing; lead seminars; and partner with faculty on research projects. As a world-recognized expert in theoretical neuroscience, his presence strengthens Princeton's international reputation in this field. Most importantly, as a Global Scholar, Azeredo da Silveira creates a gateway for scholarly exchanges between Princeton and ENS — and its affiliated research centers in Paris — that will provide students and faculty with exciting new opportunities to study and collaborate abroad.