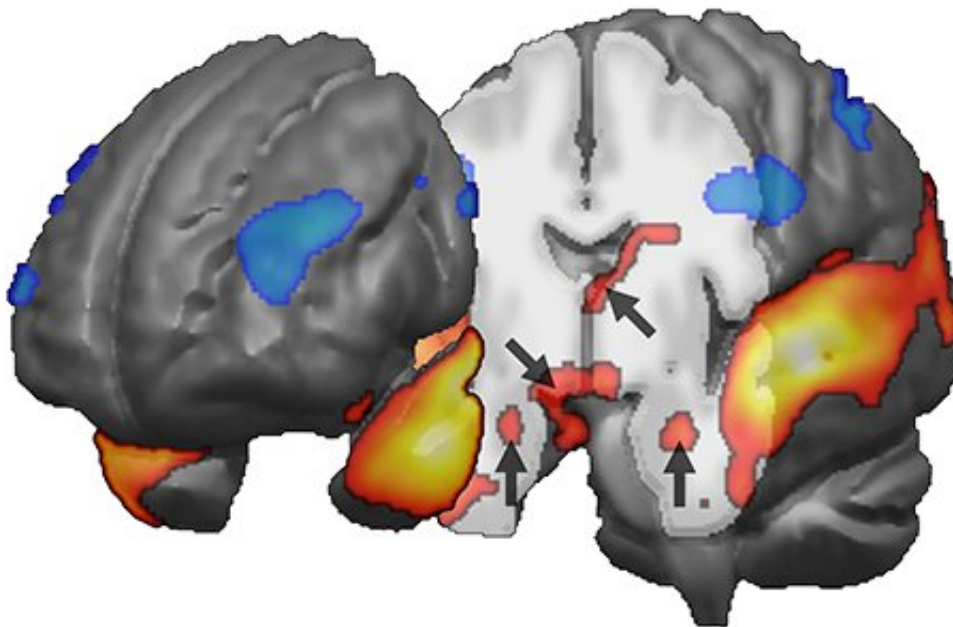


# Speaking with a robot is not as pleasant as talking to a human: study

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The participants saw, heard, and spoke with either a human (top left) or a conversational robot (top right), in real time. The brain image below the photos reveals the distinct regions activated during discussion with a human (areas in warmer colours) or a robot (cooler colours). The arrows on the cross section indicate activity in the basal ganglia (top), the two amygdalae (bottom), and the

hypothalamus (middle). Credit: Thierry Chaminade, Institut de Neurosciences de la Timone (CNRS / AMU)

Researchers from the CNRS and Aix-Marseille University have used a novel approach to demonstrate that interactions with humans activate the brain's social reward system more than discussions with robot interlocutors.

The scientists employed [functional magnetic resonance](#) imaging (fMRI) to record the brain activity of participants speaking with another human or with a robot. Published in *Philosophical Transactions of the Royal Society B* (11 March 2019), their findings show that, when compared to a similar conversation with a robot, dialogue with a fellow human significantly increases activity in the amygdalae, [basal ganglia](#), and hypothalamus.

The first two of these brain structures are involved in cerebral reward circuits while the third synthesizes oxytocin, a neuropeptide that specifically promotes the formation of social bonds. The researchers have made their data available to the [scientific community](#) for studying the cerebral mechanics that underlie the social behaviour of conversation.

**More information:** Birgit Rauchbauer et al. Brain activity during reciprocal social interaction investigated using conversational robots as control condition, *Philosophical Transactions of the Royal Society B: Biological Sciences* (2019). [DOI: 10.1098/rstb.2018.0033](https://doi.org/10.1098/rstb.2018.0033)

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