Structure and Acquisition of Sensorimotor Maps
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Understanding human motor learning and more generally how the brain changes with experience is one of the fundamental challenges in sensorimotor neuroscience. Part of the complication is that as we learn to speak or play sports such as tennis or hockey, we constantly make errors but we rarely have the opportunity to go back and correct them. Nevertheless, over time we manage to improve our performance and in cases such as speech we achieve high degrees of proficiency. In contrast, much of what is presently known about human motor learning comes from adaptation studies, and error-based learning in which we repeatedly move to the same target and have the opportunity to fix our errors. Little is presently known about how motor learning occurs when there is no opportunity to correct our performance errors in spite of the fact that the majority of motor learning occurs under these conditions. We have developed a novel task to study this kind of learning, in which subjects make movements to auditory targets which are different on every trial. I will talk about how learning occurs when you cannot fix your errors and what this tells us about sensorimotor learning more generally.