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- Thursday, July 9, 1998
Eye and Head Movements

4.0 Bob Steinman (University of Maryland) gave a talk on eye and head movements under (fairly) natural conditions. (approved by Bob)

4.1 The core of Steinman's talk was the facility at the University of Maryland that he and others have designed and built that measures eye (horizontal and vertical of both eyes) and head (yaw, pitch and roll) movements accurately in free subjects within a fairly large volume. Although you cannot actually get up and wander around, you can sit in a chair and perform naturalistic tasks unrestrained, working at a table.

4.2 Steinman gave an interesting history of the device and its antecedents.

4.3 He then showed how eye movements are not as accurate as you might imagine. Often huge amounts of slop in eye velocity and position was tolerated during head movements or when looking at a point.

4.4 In a 'history of eye movements over evolutionary time', Steinman showed eye and head movements during tasks taken as typical of various stages of human evolution. He demonstrated (with himself as subject) how gaze is controlled when taking fleas (simulated by pins) out of a partner (simulated by a stuffed gorilla), when chipping away a stone arrow head, using a stick to eat honey from a comb or when putting together a Barbie doll.

4.5 A couple of intriguing observations included that you paradoxically tend to diverge your eyes when working close up and that peak saccadic velocities are faster when the head is free than under conditions in which the head is restrained, even if the head doesn't actually move.

Bob Steinman