

## Session 5 – Mixed and Augmented Reality

### Summary of Discussion

The discussion period was led by the session chairs, Dr. Lisbeth Rasmussen and Dr. Stephen Goldberg. The major points made during the discussion are summarized below:

- When Augmented Reality (AR) will be ready for application. If you are looking at open-ended tasks we are probably several years away from AR solutions in the field – but if people are being innovative in how they train then some AR applications are ready now – need to be more innovative to bridge the gap between requirements and the technology.
- The Forward Air Controller (FAC) application presented by Mr. Franklin was seen as one that had real potential by superimposing information on real world scenes. Mr. Franklin felt the application had more uses than just FACs.
- A big problem is tracking and alignment with real-world & virtual world. Since there was so much expectation but VR didn't always deliver there is a danger of funding being pulled from research in AR if expectations aren't carefully controlled.
- Col Shufelt noted that the US Army does a constructive wrap on live training ranges representing adjoining units. The weakness of this approach is the interface between the live and constructive environments. This is where AR could be useful. For example, given AR a scout would be able to see simulated enemy and give spot report to other live players.
- Three-D sound was found to be the most compelling cue for accurate location of an air craft and it is simple to implement. 3D sound was implemented depending on where the FACs head was moving – correlated with binoculars that were head tracked.
- There were differences of opinion regarding displays. Dr. Hourlier noted that users didn't like the HUD concept when it was first introduced – no problem now – built into way of doing tasks – there were constraints at first – user needs to relearn how to use the technology to do the task more easily – reconstructs tasks – sees there is a cost-benefit – user will then want the new technology e.g. - NVGs very restrictive but pilots cannot fly in some environments without them. Acceptance of the technology is the key. Positioning the new technology alongside technology that has already been accepted will allow it to be presented as an upgrade.

