Moving from Responsive to Proactive Interactions: XR-Tools Resurrecting a 55-Year-Old Program

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Abstract*: A new look at an old initiative has been stimulated by the term: XR. As Virtual Reality (VR) and Augmented Reality have emerged, they have began to overlap, leading to the ill-defined concept of Extended Reality or XR. The emergence of this concept has spawned many novel approaches to wide spectra of issues, but this paper takes a retroactive look at and a promising concept for: developing a computer-generated therapist. Back in 1971, the Eliza program had been designed and implemented at MIT. That program was one of the earliest attempts at Natural Language Processing (NLP) and virtual conversations. The paper lays out this genesis, the subsequent work, a review of the criticisms, and an outline of its legacy. Skipping forward, the progress in NLP is surveyed, with particular emphasis on the MentorPAL project at USC. The constricting limitations of the Eliza instantiations are covered in some detail, and then the ability of XR techniques to address them are listed. In these processes, careful attention is paid to the use of standards to both facilitate and evaluate the progress toward a truly effective Virtual Therapist. Both the benefits and risks of such a program are laid out, with very detailed attention to the metrics for success and the safe guards against harming the subject or creating dangerous reactions that could injure the subject or the public. Some of these safeguard techniques will entail both computer code functions to identify dangerous situations and procedural directives to guarantee live-human oversight of progress and reactions. Paths forward will be identified and discussed. Costs, risks and maintenance will be briefly considered. Potential extensibility into other analogous activities will be set forth, again with an eye for standards designed to promote such extensibility.*

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JUDITH L. JACOBUS is retired from conducting speech therapy as a Speech and Language Specialist for more than two decades. Her experiences were in public schools settings in Orange County. California. She also previously taught for 12 years as a classroom teacher in multi-cultural communities there. Judith currently volunteers her professional skills for a local police department, so has extensive experience with dysfunctional adults and children in a variety of both every-day and traumatic situations. Her participation in amateur theatrics has more fully familiarized her with the characteristics of human behavior as they are projected via verbal, facial and body-language cues. This experience has also exposed her to the skill and art of the selection of appropriate persons for specific on-screen roles. Judith holds a lifetime Special Education Credential in Speech and Hearing Therapy, K-12 from the State of

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