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## A Visual Graphic / Haptic Rendering Model for Hysteroscopic Procedures

**Australasian Physical & Engineering Sciences in Medicine**  
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**Abstract:** Hysteroscopy is an extensively popular option in evaluating and treating women with infertility. The procedure utilises an endoscope, inserted through the vagina and cervix to examine the intra-uterine cavity via a monitor. The difficulty of hysteroscopy from the surgeon's perspective is the visual spatial perception of interpreting 3D images on a 2D monitor, and the associated psychomotor skills in overcoming the fulcrum effect. Despite the widespread use of this procedure, current qualified hysteroscopy surgeons have not been trained the fundamentals through an organised curriculum. The emergence of virtual reality as an educational tool for this procedure, and for other endoscopic procedures, has undoubtedly raised interests. The ultimate objective is for the inclusion of virtual reality training as a mandatory component for gynaecologic endoscopy training. Part of this process involves the design of a simulator, encompassing the technical difficulties and complications associated with the procedure. The proposed research examines fundamental hysteroscopy factors, current training and

accreditation, and proposes a hysteroscopic simulator design that is suitable for educating and training.

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