



INTELLIGENT TRANSDUCTION FOR RESPONSE SYNTHESIS IN TELEMANNIPULATION

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Abstract- A virtual transducer forming technique has been developed with an objective to enhance remote environment perception in tele-robotic systems by adding proximity feel in pre-contact phase during remote manipulation tasks. A fluidics inspired transducer model has been conceived and designed to serve for master side perception creation based on remote robot's proximity with workspace objects and its dynamics. Robot's native joint sensors function as primary sensors and active joystick forms the output stage. It induces proximity feel around approachable and unapproachable parts in distinctly different manner. The paper delves in aspects like building re-configurability for varied transducer characteristics formation and tunable force exertion on operator hand for suiting application context and operator choice.

Index terms: proximity, telemanipulator, virtual transducer, force feedback, servo motor , active joystick, remote-perception , operator interface, intelligent sensing.