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(71) Applicant: **ULTRAHAPTICS IP LIMITED** [GB/GB];
The West Wing, One Glass Wharf, Bristol BS2 0EL (GB).

(72) Inventors: **LONG, Benjamin John Oliver**; Ultrahaptics
IP Limited, The West Wing, One Glass Wharf, Bristol BS2

0EL (GB). **JONES, Philip Edwin**; Ultrahaptics IP Limited,
The West Wing, One Glass Wharf, Bristol BS2 0EL (GB).

(74) Agent: **WITHERS & ROGERS LLP**; 1 More London,
Riverside, London SE1 2AU (GB).

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(54) Title: DRIVING TECHNIQUES FOR PHASED-ARRAY SYSTEMS

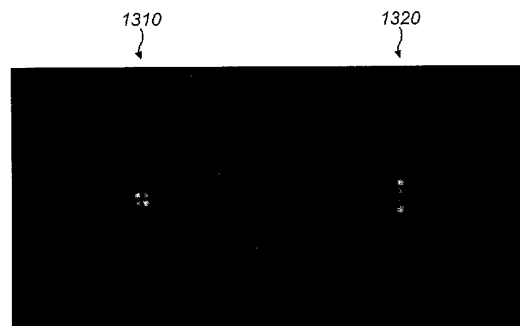


FIG. 13

(57) Abstract: Various techniques for driving phased array systems are described, specifically intended for acoustic phased arrays with applications to mid-air haptics, parametric audio, acoustic levitation and acoustic imaging, including a system: 1) that is capable of mitigating the effect of the changes in the air to provide a consistent haptic experience; 2) that produces trap points in air; 3) that defines phased-array optimization in terms of vectors for the production of more consistent haptic effects; 4) that defines one or more control points or regions in space via a controlled acoustic field; 5) that uses a reduced representation method for the construction of acoustic basis functions; 6) that performs efficient evaluation of complex-valued functions for a large quantity of throughput; 7) that generates a Krylov sub-space of a matrix; and 8) that maximizes an objective described by different control points and/or regions to those used to create the acoustic basis functions.

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