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(54) Title: SYSTEM AND METHOD FOR SENSOR RESPONSE LINEARIZATION

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$$\left(a_j^{\frac{1}{2j-1}} m \right)^j \quad (I)$$

$$\left(a_j^{\frac{1}{2j-1}} \right)^{j-1} \quad (II)$$

(57) Abstract: A system and method for generating a linearized sensor signal (p) from a sensor signal (m) using a kth-degree polynomial. The coefficients of the kth-degree polynomial can be calculated using a least-squares method by a computer. The computer can calculate for 1 ≤ j ≤ k the (2j-1) root of the jth coefficient a_j of the kth-degree polynomial and download the coefficients and the resulting root r_j to a storage device in a digital signal processor (DSP). For 1 ≤ j ≤ k, the DSP can calculate formula (I) and multiply the result by formula (EQN 9). The resulting terms can be added to the calculation of a₁m to generate the kth-degree polynomial. The kth-degree polynomial is the linearized sensor signal.