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(71) Applicant: **GOOGLE LLC** [US/US]; 1600 Amphitheatre Parkway, Mountain View, California 94043 (US).

(72) Inventors: **HASHEMI, Milad Olia**; 1600 Amphitheatre Parkway, Mountain View, California 94043 (US). **SMITH, Jamie Alexander**; 1600 Amphitheatre Parkway, Mountain View, California 94043 (US). **SWERSKY, Kevin Jordan**; 111 Richmond Street West, Toronto, Ontario M5H 2G4 (CA).

(74) Agent: **PORTNOV, Michael**; Fish & Richardson P.C., PO Box 1022, Minneapolis, Minnesota 55440 (US).

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(54) Title: MULTI-TASK RECURRENT NEURAL NETWORKS

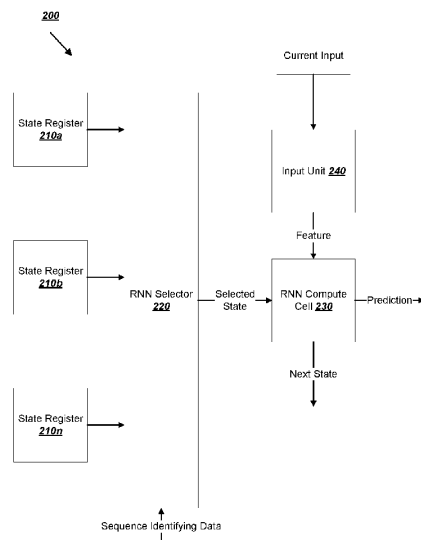


FIG. 2

(57) Abstract: Methods, systems, and apparatus, including computer programs encoded on computer storage media, relating to multi-task recurrent neural networks. One of the methods includes maintaining data specifying, for a recurrent neural network, a separate internal state for each of a plurality of memory regions; receiving a current input; identifying a particular memory region of the memory access address defined by the current input; selecting, from the internal states specified in the maintained data, the internal state for the particular memory region; processing, in accordance with the selected internal state for the particular memory region, the current input in the sequence of inputs using the recurrent neural network to: generate an output, the output defining a probability distribution of a predicted memory access address, and update the selected internal state of the particular memory region; and associating the updated selected internal state with the particular memory region in the maintained data.

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