EFFICIENT FLOATING-POINT PRECISION ESTIMATION FOR GPU PROGRAMS

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FLOATING-POINT PRECISION ESTIMATION

- Precision estimation is needed but difficult
- Random testing can scale to handle GPU programs
FLOATING-POINT PRECISION ESTIMATION

- Improve estimation quality by search

Input Domain

\[ X_0 \leftarrow \{ \ldots \} \]
\[ X_1 \leftarrow \{ \ldots \} \]
\[ X_2 \leftarrow \{ \ldots \} \]

Guided Search for the Optimal Sub-domain

Input Sub-domains

\[ X_0 \leftarrow \{ \ldots \} \]
\[ X_1 \leftarrow \{ \ldots \} \]
\[ X_2 \leftarrow \{ \ldots \} \]

- Results on GPU programs

Our publication and tool: [www.cs.utah.edu/fv/Gauss/Pages/grt](http://www.cs.utah.edu/fv/Gauss/Pages/grt)