Background & Motivation:

- **MVS (Multi-view Stereo):**
  - A key stage of image-based 3D reconstruction.
  - To recover the dense representation with a series of calibrated images.

- **Real applications:**
  - Runtime efficiency: time & memory.
  - Flexibility: configurable hyperparameters.
  - Recurrent regularization: lightweight, configurable but slow.
  - Cascade regularization: fast, unconfigurable but heavyweight.

Hybrid Regularization:

- **Overall architecture:**
  - Multi-stage coarse-to-fine depth sampling & regularization.
  - Recurrent regularization for stage-wise regularization.
  - A good & flexible trade-off between time & memory.
  - Stage-wise recurrent regularization:
    - 2D encoder-decoder CNN for each cost slice.
    - LSTM RNN for context across cost slices.

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