

# Q1: current trends

- Speech and machine learning
  - Deep learning
  - Gaussian process
- Important modeling approach:
  - use a very large number of models implicitly or explicitly and select models which are important to capture temporal and spatial characteristics in the data
- Important estimation approach: there exists global solution.
- Important theoretical issues to be resolved:
  - Feasible algorithms
  - Post analysis methods, especially for latent variables

## Q2: important open areas

- Use of different kinds of massive spatial and temporal data
- New applications, e.g. elderly care

# Q3: examples of recent research in SSM

- Data assimilation, e.g., Tsunami prediction, Guerrilla heavy rain prediction
- Estimation challenges: massive data, real-time computation

# Q4: thoughts

- Speech
  - Conferences: ICASSP (, Interspeech)
  - Journals:
    - IEEE trans. on Audio, Speech, and Language Processing (IF: 1.675)
    - Speech Communication (ISCA) (IF: 1.283)
- Machine learning
  - Conferences: NIPS, ICML
  - Journals:
    - Journal of Machine Learning Research (IF: 5.952)
    - NIPS

# Q5: package/tool boxes

- SVM: libsvm, liblinear (National Taiwan U.)
  - <http://www.csie.ntu.edu.tw/~cjlin/libsvm/>
  - <http://www.csie.ntu.edu.tw/~cjlin/liblinear/>
- HMM: HTK (Cambridge U.)
  - <http://htk.eng.cam.ac.uk>
- GP: gpml (Rasmussen et al: )
  - <http://www.gaussianprocess.org/gpml/>

# Q6: data sets / problem settings

- Speech
  - LDC (1992-2014 Linguistic Data Consortium)
    - <https://www ldc.upenn.edu>
  - ELRA Catalogue of Language Resources
    - <http://catalog.elra.info>
  - Speech Resources Consortium (NII-SRC)
    - <http://research.nii.ac.jp/src/en/index.html>
- Machine learning
  - Classification, regression