Approximation: from Discrete to Continuous

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1) Gibbs Sampler LDA

10 Topics

```
'algorithm matrix problem optimal algorithms step state'
'learning set error training probability number rate'
'function functions space points point number class'
'data information noise gaussian case linear analysis'
'vector representation pattern figure patterns structure memory'
'network networks neural input units'
'model models parameters order figure'
'neural neurons neuron fig time networks'
'image field cells local visual cell figure'
'time figure system input current output signal'
```

20 Topics

```
'algorithm matrix optimal step'
'learning state rate'
'set error training probability'
'function functions'
'information noise gaussian linear'
'data based process'
'order problem parameters methods'
'analysis values case random'
'vector representation structure processing level simple features'
'number large size'
'image local point'
'pattern patterns memory recognition performance single'
'figure shown shows'
'model'
'network networks'
'time system'
'units input unit weights layer'
'input output current inputs control'
'neurons neuron fig'
'field cells visual'
```

2) Gibbs Sampler HDP

It gives 178 topics and we here display the biggest 20 topics.

Gibbs CRF Sampler

```
 time signal system figure output input processing neural shown information
figure model shown order neural function results systems paper based
neural networks number function network functions problems results order case
network networks figure neural paper systems input time case based
neural time neuron figure networks cell neurons systems system shown
model cells figure visual cell input results shown similar single
function functions space method problem linear set order data number
time point network neurons system state neural functions neuron large
problem matrix model results function figure approach algorithms set problems
figure control system problem time shows systems shown performance space
image problem noise data shown field small values current high
weights input weight learning output function neural small layer network
data function model analysis parameters classification space vector values form
algorithm function data set point step local problems neural networks
learning state algorithm algorithms optimal results values function probability class
network neurons neural input output number state neuron shown fig
learning error examples set distribution probability training space values networks
data linear algorithm noise case approach matrix problem analysis information
model based neural rate data optimal figure analysis paper case
error results process function noise gaussian methods performance method small
```

Gibbs Block Sampler

It gives 32 topics and we here display the biggest 20 topics.

```
time figure system signal output input neural shown systems visual
network neural networks input layer weights number figure output net
model models figure based data structure analysis parameters shown neural
function functions space linear method distribution set order methods class
algorithm optimal step problem figure control function space methods state
cells cell visual field neurons figure model local input shown
data noise gaussian information distribution parameters linear figure analysis shown
algorithm matrix problem learning algorithms results set vector function form
neuron neurons neural networks state network time model systems parameters
system point time function local networks order neural models network
values order size number probability state case random set results
training data learning set case error number neural trained hidden
learning algorithm algorithms state rate time distribution process probability form
image visual point local points number based high signal values
units unit output input hidden weights system figure space representation
information fig time neural system neurons large performance single task
vector representation space structure level case shown processing points network
pattern patterns single figure results systems analysis based order process
current fig input output shown shows large inputs small cell
figure recognition feature task performance high features problem representation neural
```