ΟΙΚΟΝΟΜΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ
ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS

ΣΧΟΛΗ ΕΠΙΣΤΗΜΩΝ & ΤΕΧΝΟΛΟΓΙΑΣ ΤΗΣ ΠΛΗΡΟΦΟΡΙΑΣ
SCHOOL OF INFORMATION SCIENCES & TECHNOLOGY

ΤΜΗΜΑ ΣΤΑΤΙΣΤΙΚΗΣ
DEPARTMENT OF STATISTICS

ΚΥΚΛΟΣ ΣΕΜΙΝΑΡΙΩΝ ΣΤΑΤΙΣΤΙΚΗΣ ΟΚΤΩΒΡΙΟΣ – ΔΕΚΕΜΒΡΙΟΣ 2014

Μιχάλης Τίτσιας
Department of Informatics
Athens University of Economics and Business

The Hamming Ball Sampler

ΤΕΤΑΡΤΗ 26/11/2014
13:00 – 14:00

ΑΙΘΟΥΣΑ 607, 6ος ΟΡΟΦΟΣ,
ΚΤΙΡΙΟ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ
(ΕΥΕΛΠΙΔΩΝ & ΛΕΥΚΑΔΟΣ)

ΠΕΡΙΛΗΨΗ (ΣΤΑ ΑΓΓΛΙΚΑ)

We describe a novel Markov Chain Monte Carlo sampling algorithm for efficient inference in statistical models involving high-dimensional discrete state spaces. The Hamming Ball Sampler uses an auxiliary variable construction that adaptively truncates the model space allowing iterative exploration of the full model space in polynomial time. The sampler is computationally tractable for large models where
conventional methods are infeasible. We illustrate the generic utility of our sampling algorithm through a number of applications in expression quantitative trait loci analysis (variable selection), tumor deconvolution (mixture models) and energy disaggregation (Factorial Hidden Markov Models).

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ΤΜΗΜΑ ΣΤΑΤΙΣΤΙΚΗΣ
DEPARTMENT OF STATISTICS

AUEB STATISTICS SEMINAR SERIES OCTOBER– DECEMBER 2014

Michalis Titsias
Department of Informatics
Athens University of Economics and Business

The Hamming Ball Sampler

Wednesday 26/11/2014
13:00 – 14:00

ROOM 607, 6th FLOOR,
POSTGRADUATE STUDIES BUILDING
(EVELPIDON & LEFKADOS)

ABSTRACT

We describe a novel Markov Chain Monte Carlo sampling algorithm for efficient inference in statistical models involving high-dimensional discrete state spaces. The Hamming Ball Sampler uses an auxiliary variable construction that adaptively truncates the model space allowing iterative exploration of the full model space in polynomial time. The sampler is computationally tractable for large models where conventional methods are infeasible. We illustrate the generic utility of our sampling algorithm through a number of applications in expression quantitative trait loci analysis (variable selection), tumor deconvolution (mixture models) and energy disaggregation (Factorial Hidden Markov Models).