Computational Advertising Class Schedule
UC Santa Cruz, Spring 2009

March 11, 2009

Notes
• All times are tentative and will be firmed up after we survey participants’ background and interests.
• Topics marked optional will be covered time-permitting

1 Introduction and Overview (3 hours) date: 3/30 Andrei
• The Web
• Advertising 101
• Short History of Online Advertising
• On-line Advertising Formats
• Economic actors
• Overview of the lecture schedule

2 Information Retrieval (IR) for Computational Advertising (3 hours) date: 4/7 Vanja
• Overview
• Document Analysis
• Models for IR Retrieval
• Indexing and Searching
• Query Expansion and Relevance Feedback
3 Machine Learning Techniques (3 hours) date: 4/21
Alex Smola, content tentative

• Introduction
• Classification Algorithms
  – Nearest Neighbor
  – Linear Discriminant Analysis
  – Decision Trees
• Large Margin Classification
  – Support Vector Machines
  – Boosting
• Unsupervised learning

4 Marketplace design (3 hours) date: 4/14 Andrei?

• Contracts and payments
• Microeconomics

5 Sponsored Search (6 hours) date: 5/5, 5/12 Vanja

• Overview
• Query analysis
• Ad analysis
• Ad selection
  – Ad selection types
  – Exact Match
  – Broad Match
  – Using click data for ad selection
  – Search based ad selection
• Revenue optimization and reordering
• Bid phrase suggestion systems (optional)
• Emerging SS models (optional)
6 Content Match (6 hours) date: 5/19 Vanja
- Overview
- Ad selection
- Impression forecasting for CM
- Click based models

7 Graphical ads and guaranteed delivery (3 hours) date: 5/26 Andrei
- Overview
- Forecasting
- Optimization
- Delivery
- Impact

8 Behavioral Targeting (BT) (3 hours) date: 6/2 Vanja
- Overview
- Targeting users based on past behavior
- Types of BT data
- Ad selection based on BT
- BT vs. other targeting mechanisms

9 Emerging Advertising Media date: Andrei, time permitting
- TBD

10 Evaluation of On-line Advertising Systems date: Vanja, time permitting
- Evaluation data
- Ranked Retrieval Evaluation
- Precision and Recall
- Single Value Summaries
- A/B testing
- Positional effect in Context Match
- Reuse of judgments and clicks
- Ad structure and impact on click and judgment data