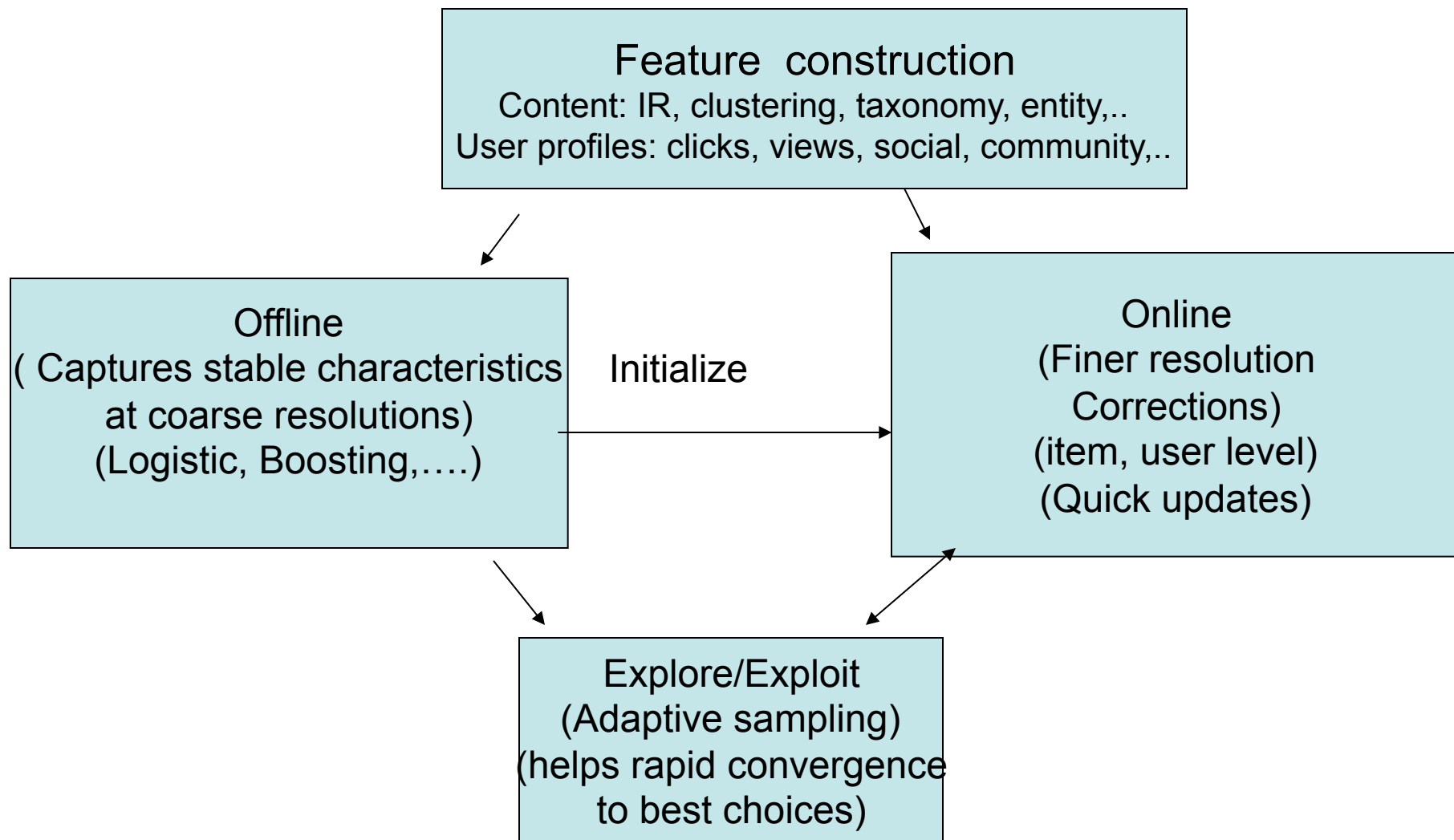


Predicting user-item interaction rates



Post-click: An example in Content Optimization

Recommender

EDITORIAL

content

Clicks on FP links influence downstream supply distribution



AD SERVER

DISPLAY
ADVERTISING Revenue

SPORTS

NEWS

OMG

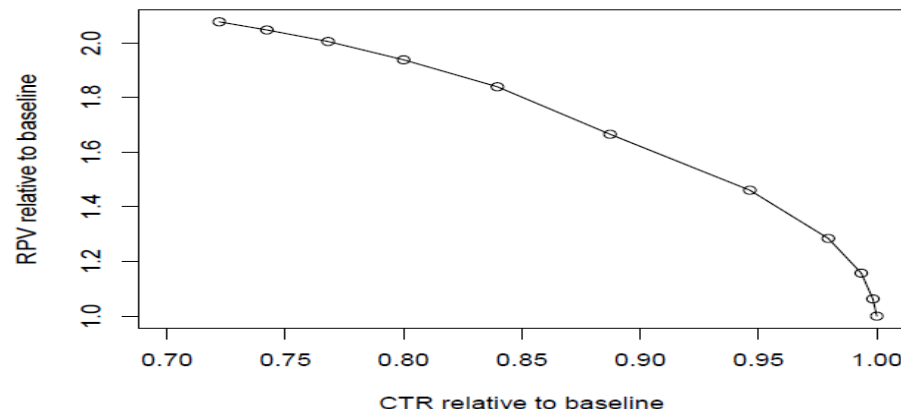
FINANCE

Downstream
engagement
(Time spent)



Serving Content on Front Page: Click Shaping

- What do we want to optimize?
- Current: Maximize clicks (maximize downstream supply from FP)
- But consider the following
 - Article 1: CTR=5%, utility per click = 5
 - Article 2: CTR=4.9%, utility per click=10
 - By promoting 2, we lose 1 click/100 visits, gain 5 utils
- If we do this for a large number of visits --- lose some clicks but obtain significant gains in utility?
 - E.g. lose 5% relative CTR, gain 40% in utility (revenue, engagement, etc)





Example Application: Today Module on Yahoo! Homepage

Currently in production, powered by some methods
discussed in this tutorial

YAHOO! SITES

Edit

- Mail
- Autos
- Chat
- Fantasy Sports
- Finance
- Games
- Horoscopes
- HotJobs
- Maps
- Messenger
- Movies
- omg!
- Personals
- Shopping
- Sports
- Travel
- Updates
- Weather

More Yahoo! Sites

MY FAVORITES

Edit

- eBay
- Facebook
- Twitter

TODAY - July 14, 2010



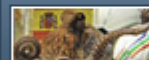
World Cup octopus could make millions

Paul the octopus is in high demand after a perfect run of predicting soccer game winners. » Possible opportunities

More on the octopus
Cup winners and losers
U.S.'s top moments



Salsa tied to food illness



Octopus could be worth millions



Lottery winner rich in mystery



High schooler's impressive link

5 - 8 of 28

NEWS WORLD LOCAL FINANCE

- 9 killed, 10 missing as typhoon lashes Philippines | Photos
- Testing delayed on tighter cap for Gulf oil well | Photos
- W.Va. mine disaster prompts bill to toughen worker safety rules
- Military won't establish 'separate but equal' housing for gays
- Small banks struggling despite gov't bailouts, watchdog reports
- Tiny mushroom blamed for 400 deaths in southwest China
- CHP pursuit ends in two-car crash in San... - S.J. Mercury N...
- Oakland talks break down; layoffs for 80... - S.F. Chronic...
- Stanford grad student dies in Yosemite... - Mountain Vie...
- NBA · NHL · MLB · Tennis · Golf · Soccer · NASCAR

updated 01:49 am

More: News Popular Buzz

TRENDING NOW

- Kourtney Kardash...
- Anna Chapman
- Al Pacino
- French Toast Rec...
- Nina Garcia
- Susan Boyle
- Job Search
- Yogi Berra
- Philippines Typh...
- Sunscreen

AdChoices

Anything you want, you got it with Ultimate Rewards.

Recommend packages:
Image
Title, summary
Links to other pages

Pick 4 out of a pool of K
 $K = 20 \sim 40$
Dynamic

Routes traffic other pages

DAILY OFFERS



Mortgage rates low as 3.32% APR

Problem definition

- Display “best” articles for each user visit
- Best - Maximize User Satisfaction, Engagement
 - BUT Hard to obtain quick feedback to measure these
- Approximation
 - Maximize utility based on immediate feedback (click rate) subject to constraints (relevance, freshness, diversity)
- Inventory of articles?
 - Created by human editors
 - Small pool (30-50 articles) but refreshes periodically

Where are we today?

- Before this research
 - Articles created and selected for display by editors
- After this research
 - Article placement done through statistical models
- How successful ?

"Just look at our homepage, for example. Since we began pairing our content optimization technology with editorial expertise, we've seen click-through rates in the Today module more than double. ----- Carol Bartz, CEO Yahoo! Inc (Q4, 2009)



Main Goals

- Methods to select most popular articles
 - This was done by editors before
- Provide personalized article selection
 - Based on user covariates
 - Based on per user behavior
- Scalability: Methods to generalize in small traffic scenarios
 - Today module part of most Y! portals around the world
 - Also syndicated to sources like Y! Mail, Y! IM etc

