Global Development Challenges

SEIF Workshop 2013
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Bing “Brazil” Context

- Five Search Technology Centers (STC) deliver components to our market
- STC-B is the smallest team, with approximately 20 people

Our charter:

1. Accelerate **core** feature development  \(\Rightarrow\) reason for not leaving
2. Create **relevant** features for Brazil  \(\Rightarrow\) reason for sticking around
3. Create **differentiated** experiences for Brazil  \(\Rightarrow\) reason for not picking the other guy
Global Feature Scale-out Model

Market Teams
- Select Features for ML models
- Train and Validate Model
- Flight in Production (A/B testing)
- Deploy Model in Production
- ...Repeat Until Target is Reached!

Feature Teams
- Define Metrics
- Define Global Targets (w/ Market Teams)
- Choose Better-Suited ML Library
- Select and Design Initial Features

Platform Teams
- Design Machine Learning Algorithm
- Develop Training Tools
- Create Validation/Testing Environment
- Maintain Production Environment

Platform Teams
- Multi-Market Teams
- Single Market Teams
- Feature Teams (e.g. Adult Classification)

BIG DATA
Case: Train and deploy a classifier for adult pages on the web (for Brazilian users)

1. Filter out adult search results when user intent is not adult
2. Query Understanding – QU
   1. “Garota safada” (name of a forró band but also “naughty girl”)
   2. “Urso peludo” (hairy bear)
3. Document Understanding – DU
   1. Revista gratis
   2. Leakage in celebrity news
      • Carolina Diekmann
      • Scarlet Johansson

Settings

SafeSearch
Filter adult content from your search results.
- **Strict**: Filter out adult text, images, and videos from your search results.
- **Moderate**: Filter adult images and videos but not text from your search results.
- **Off**: Don’t filter adult content from your search results.

Still seeing inappropriate content? SafeSearch uses advanced technology to filter adult content, but it won’t catch everything. If SafeSearch is set to Strict or Moderate and you’re seeing adult content, **tell us about it** so we can filter it in the future. You can also learn about **services and products from Microsoft** to help you stay safe online.
Adult Leakage Rate

Metric Definition
On representative queries with non-adult intent, the rate of adult documents in the result set

What is the main reason behind these improvements?
Engineering teams responsibilities

- Different teams across the globe with different roles and commitments
Market Team – Typical Development cycle

- Analysis of False Positives and False Negatives
- Feature Analysis
- Corpus size

- Actual Coding
- Model Training
- Model Validation

- Precision/Recall Curves
- Leakage, NDCG
- Performance
Competencies and Challenges

- Analytical, technical and data driven skills
  - “Are you able to step back (or sometimes hold back) and objectively challenge your metrics when they go against intuition?”
  - Ship-first culture

- Ability to develop a deep understanding of search technology
  - “Are you able to design a search architecture that takes into consideration the complexity to scale-out globally?”
  - Measurement accuracy and scalability

- Collaboration across teams
  - “Are you able to influence the prioritization of other teams by defending and negotiating your goals in a broader context?”
  - “Are you able to unblock yourself when there’s no documentation and no clear code/process ownership?”