

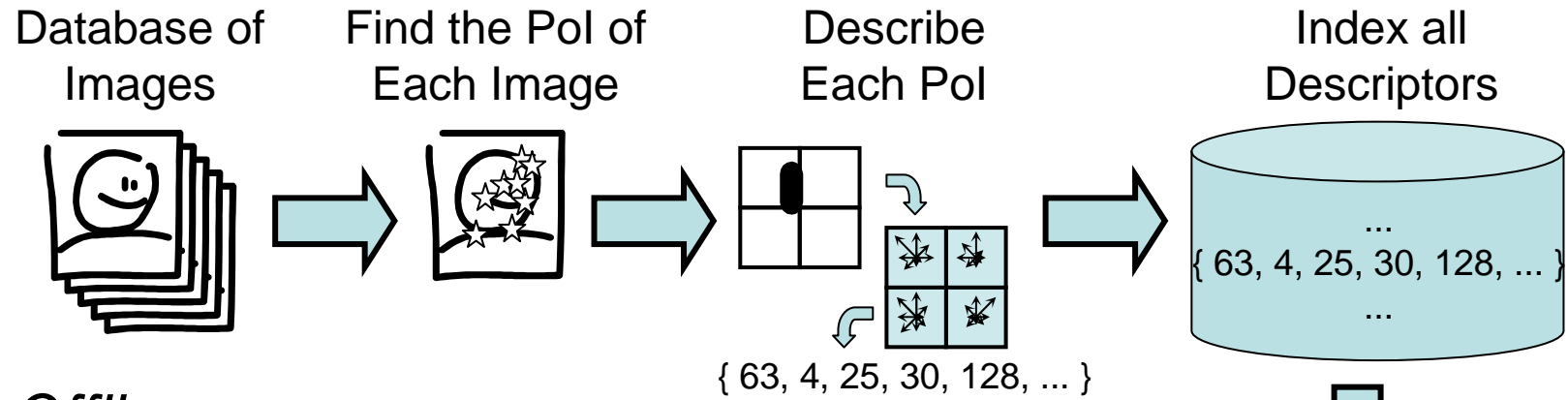
Image Identification using Local Descriptors

IMAGEVAL: Task 1

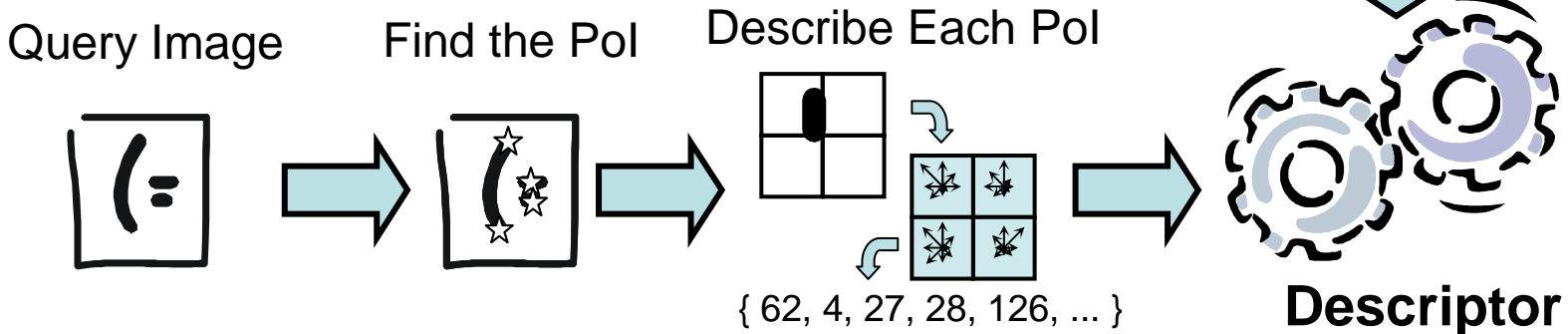
ETIS lab, France

Thx to Eduardo Vale

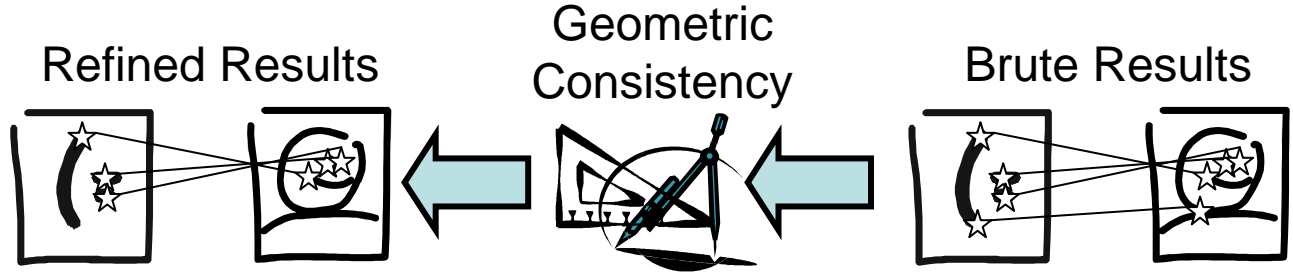
Identification with Local Descriptors



Offline

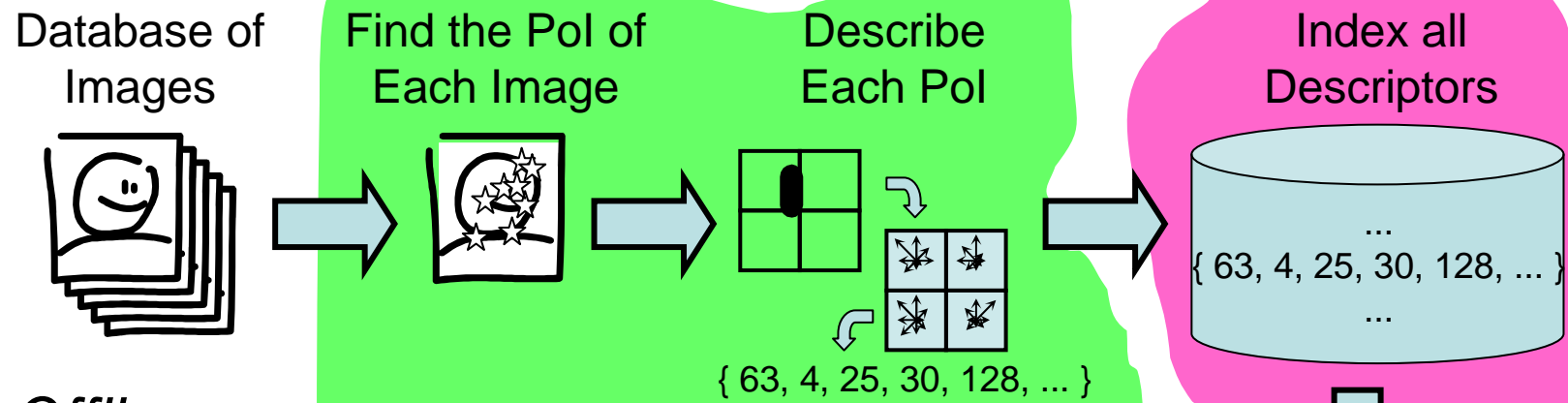


Descriptor Matching

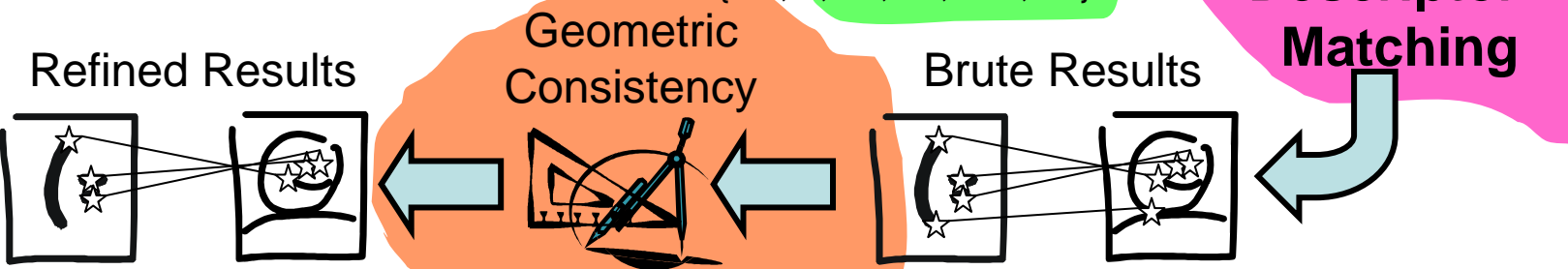
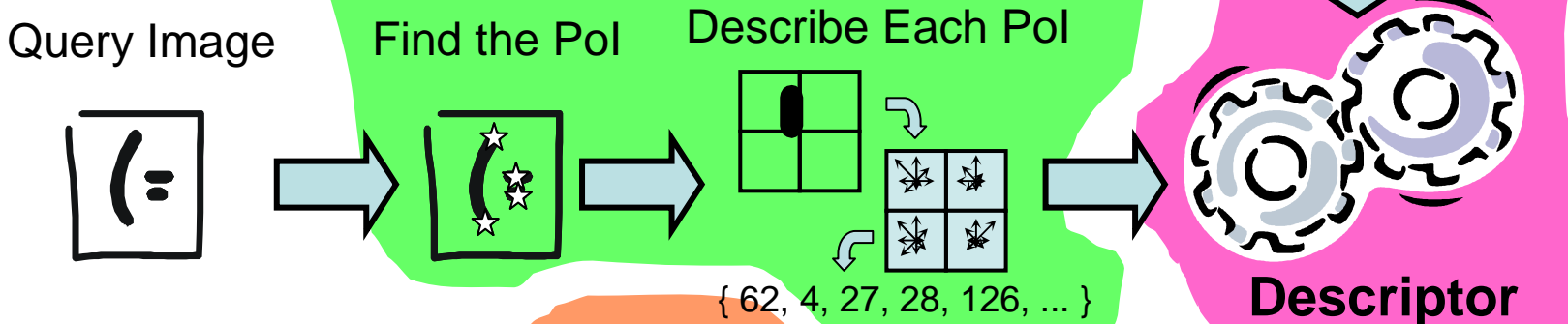


Online

Identification with Local Descriptors



Offline



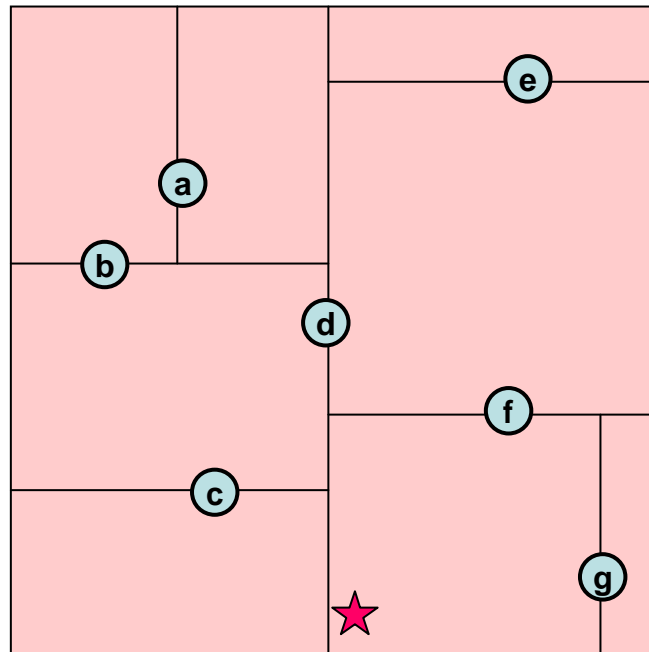
Online

Pol Detector/Descriptor: SIFT

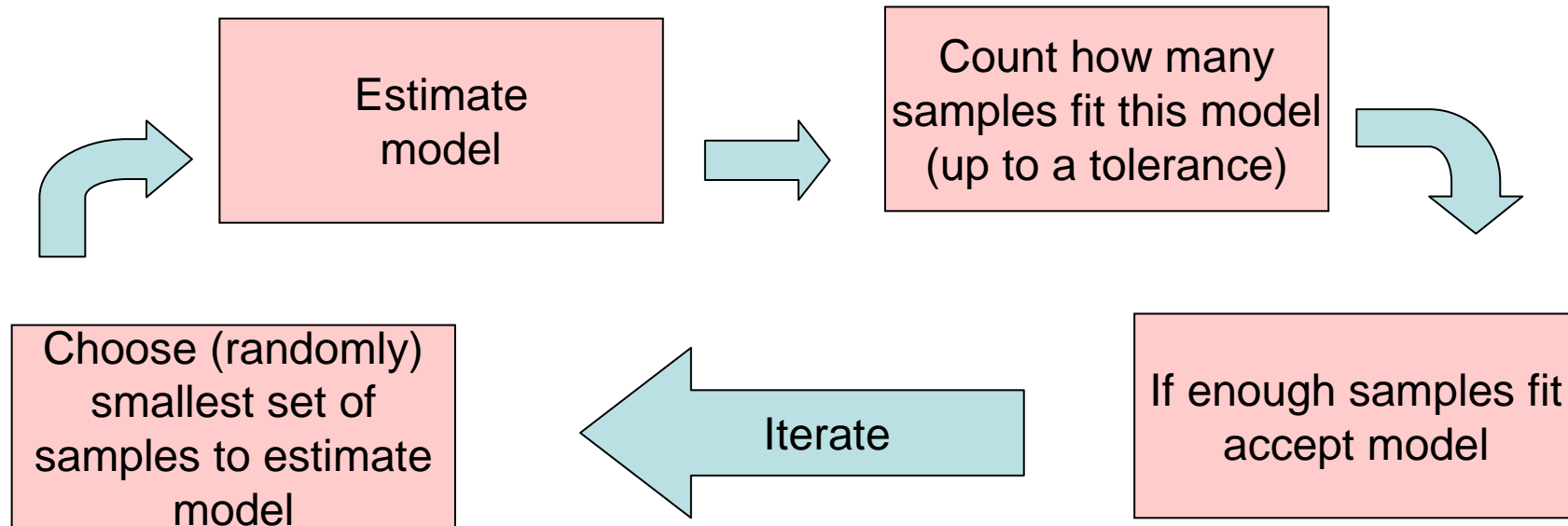
- Detector based on local extrema on a scale-space
- Characteristics of the descriptor:
 - Scale and direction “corrected” before the computation of the descriptor
 - Sets of histograms of the gradient on regions around the point
- High dimensionality: 128
- Not invariant to the negative transformation
 - Search twice: for the query and for the negative of the query

Descriptor Matching: KD-Trees

- The KD-Tree is a classic data structure for similarity search
- Using the Best Bin First scheme, it is possible to limit the time spent on the KD-Tree and still have acceptable results



- Geom. Consistency: RANSAC (RANdom Sample Consensus)



Alternative: compute a HUGE visual dictionary

Task 1: Too Easy?

- Open questions
 - Smooth, low contrast images
 - Aggressive cropping
 - Time

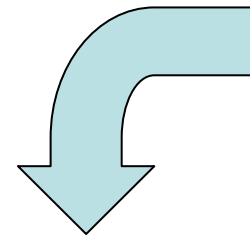


Image Identification using Local Descriptors

Task 1

ETIS — Équipes Traitement des
Images et du Signal

Identification with Local Descriptors

- Intrinsic robustness to cropping and occlusions
- Excellent robustness to rotations and scale transformations
- Good robustness to other transformations