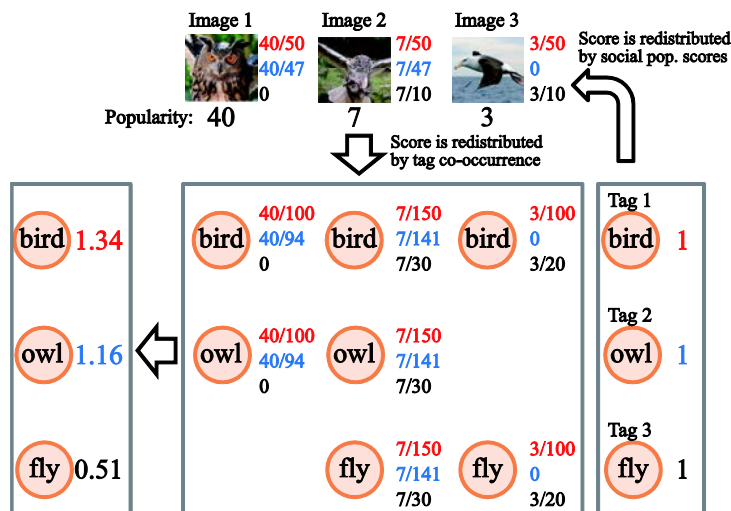


# FolkPopularityRank: SNSでの閲覧数を向上させるタグ推薦

山崎 俊彦, ジャン イーウェイ, フー ジャニ, 佐野 峻平(東大)

[Yamasaki, IJCAI17]



タグの重要度計算と推薦



original

creatures female image pic  
 nature natural nevada wild  
 phalaropus tricolor phalarope  
 photograph photographs avian  
 picture pictures shore photo  
 birds animals wading images  
 wildlife bird pics wilson's

Tagcoor: photography canon travel  
 beautiful water flickr girl  
 nikon beach landscape

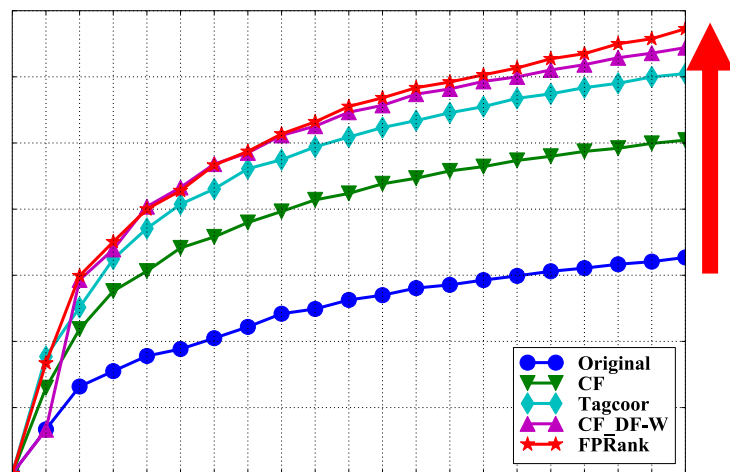
CF: photography zoo forest usa  
 arizona north america america  
 project365 united states nikon

CF\_DF-W: photography zoo forest  
 arizona project365 nikon  
 america jpeg jpg usa

FPRank: photography canon travel  
 beautiful water animalia  
 green insect macro blue

\* Taken from Flickr CC photos

number of Views



2000枚の画像を用いた実証実験

人間が考えたタグに比べて2倍の閲覧数

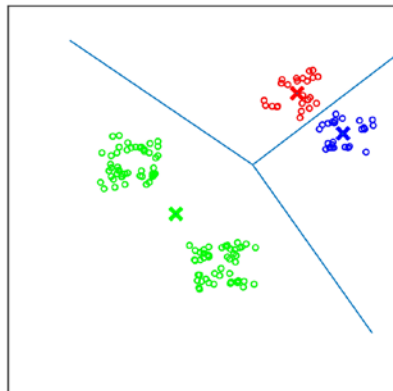
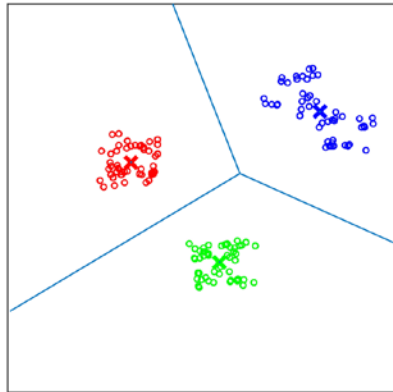
# Residual Expansion Algorithm: Fast and Effective Optimization for Nonconvex Least Squares Problems

伊神大貴, 相澤清晴 (東京大学)

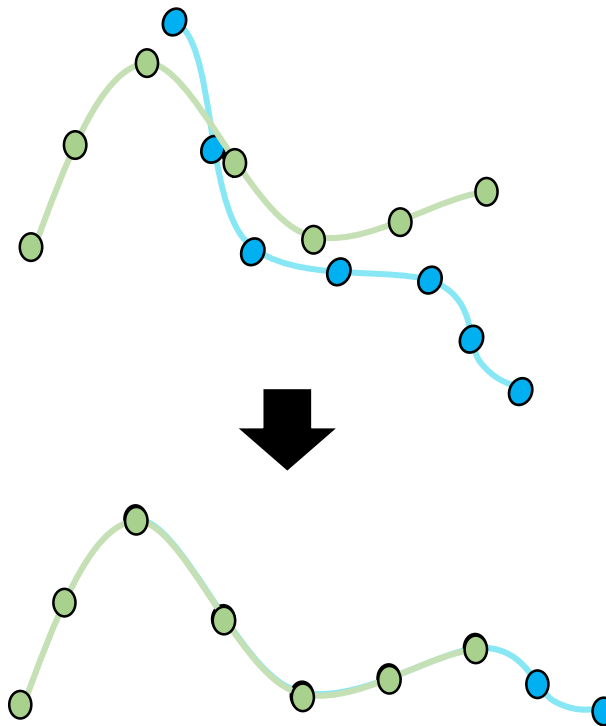
CVPR2017

## 非凸な最小二乗法問題への大域的最適化アルゴリズム

K-meansクラスタリング



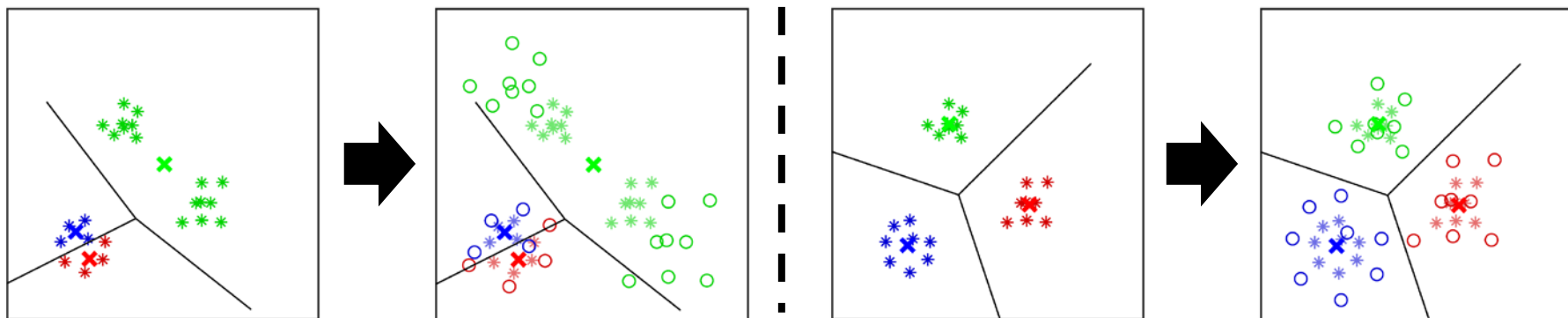
ICPアルゴリズム



ボケ除去



# 拡大率 $\alpha$ でデータを残差ベクトルの方向へ移動



仮定：良い局所解は大きな $\alpha$ でも収束している

最適化問題： $\frac{1}{2} \|\mathbf{y} - \mathbf{f}(\boldsymbol{\theta})\|_2^2$

Initialization:  $t = 0, \hat{\mathbf{y}}^{(0)} = \mathbf{y}, \alpha^{(0)} > \alpha^{(1)} > \dots > \alpha^{(T)} = 0$

Repeat:

$\boldsymbol{\theta}^{(t+1)} = \underset{\boldsymbol{\theta}}{\operatorname{argmin}} \frac{1}{2} \|\hat{\mathbf{y}}^{(t)} - \mathbf{f}(\boldsymbol{\theta})\|_2^2$  Parameter updating step

$\mathbf{r}^{(t+1)} = \mathbf{y} - \mathbf{f}(\boldsymbol{\theta}^{(t+1)})$

Residual expansion step

$\hat{\mathbf{y}}^{(t+1)} = \mathbf{y} + \alpha^{(t)} \mathbf{r}^{(t)}$