



# TrailBlazer

Georgia  
Tech



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# Find best tracks for your outdoor trainings!

## Introduction

### Problem

New to an area and still want to practice mountain bike or hiking ? How to find where to train ?

#### Solutions exist:

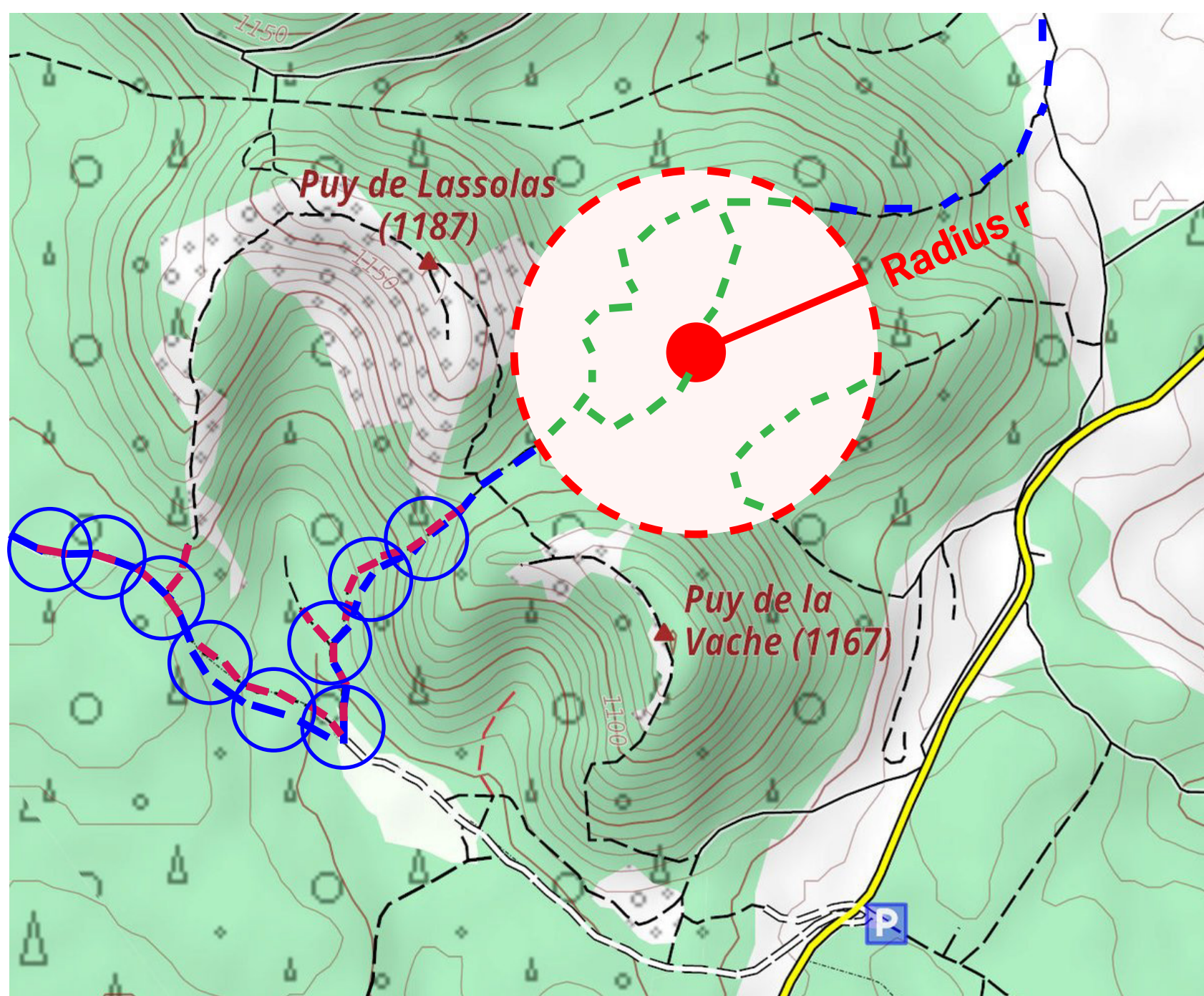
- Try to find a track with Google Maps,
- Search for point of interests online and try to reach them with a map.

#### But ... these solutions aren't viable:

- Google Maps try to find the short way between two points, not the most interesting one,
- If you want to reach a POI, you cannot be sure the way to it is interesting too.

## Our data & preprocessing method

Geocaching database **+** Utagawa VTT database  
250,000 POI    11,000 mountain bike tracks



#### POI preprocessing

- POI n°X
- Limit of neighbourhood (r=1km)
- Interesting roads (Increase POIWeight)

#### Tracks preprocessing

- Track n°Y
- Track approximations (r=25m)
- Interesting roads (Increase TrackWeight)

➔ GeoJson map with POIWeight & TrackWeight metadata

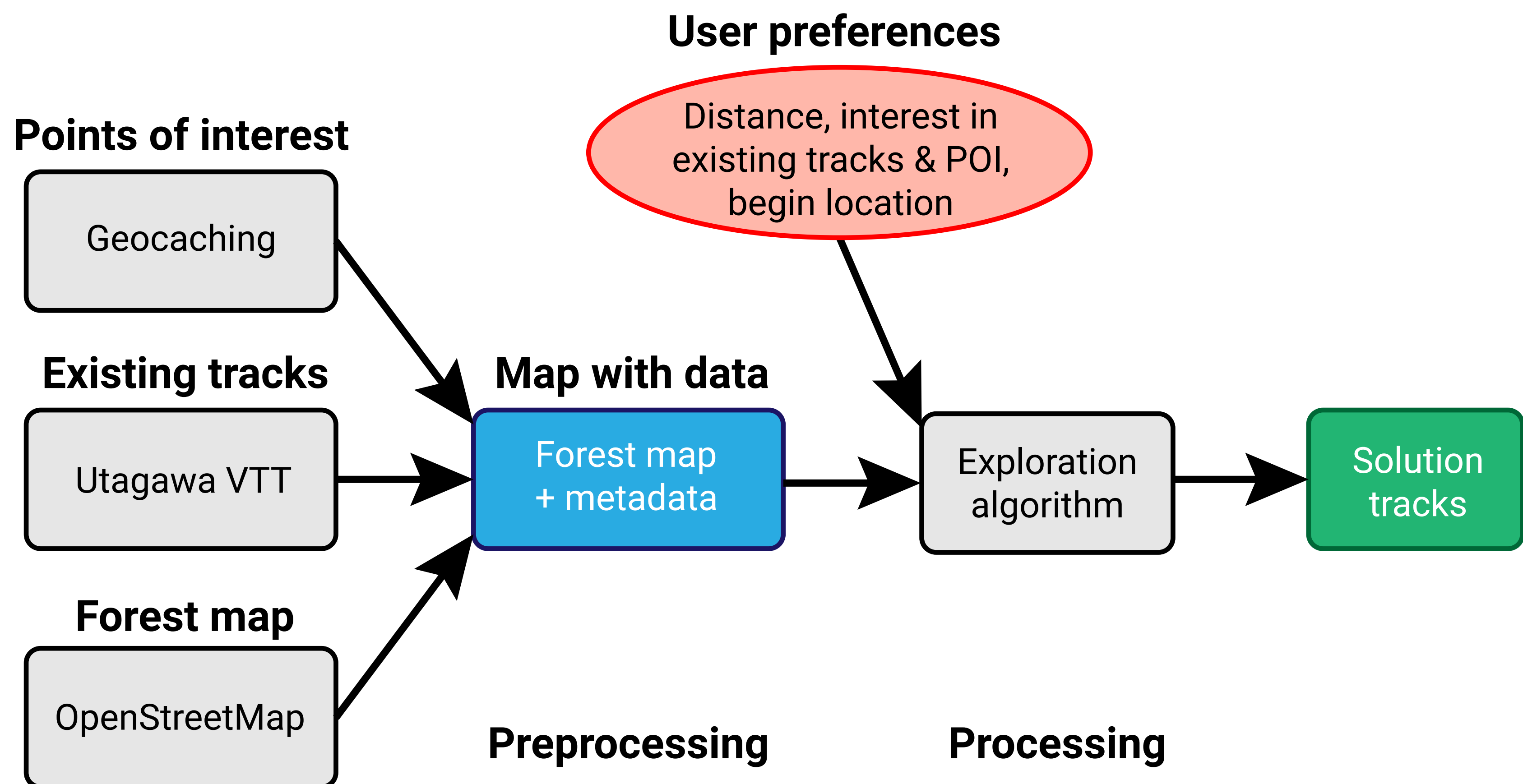
## Experiments & results

### Back end experimentation

	Ave. poi weight per point	Ave. track weight per point
Random point	< 0.001	0.055
Google Maps (begin location & random end)	< 0.001	0.062
Utagawa (not correlated with begin location)	0.009	1.24
Algorithm (begin location & random end)	0.012	0.87

The algorithm gives tracks with higher weight than a simple Google Maps one. Moreover it's more useful that just using random directions too. Utagawa tracks are sometimes better, but they cannot be used because not related to right begin location and track distance.

## Our approach

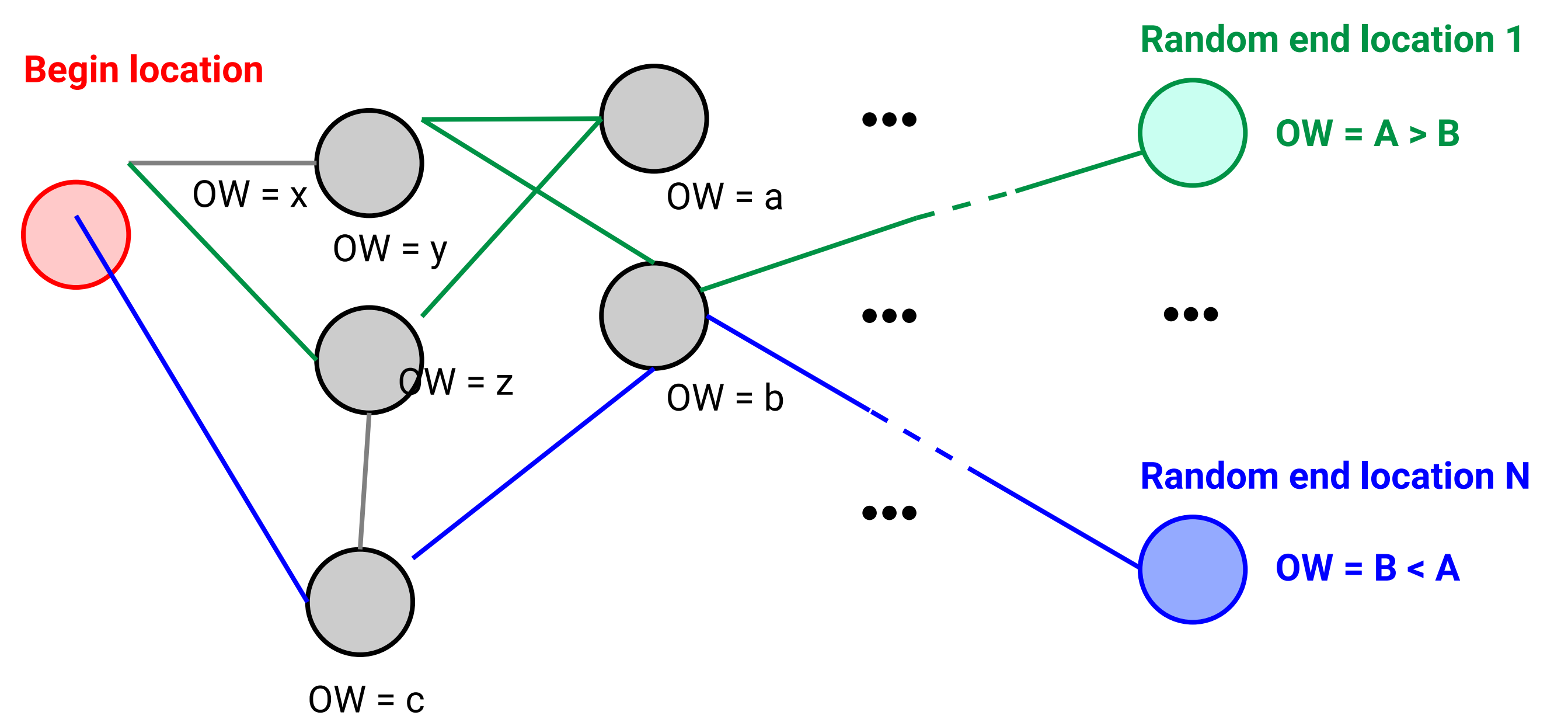


### What's new?

Our solution takes advantages of existing information on the internet: mountain bike tracks and POI. According to user preferences, the algorithm search best tracks around and propose them through a web interface. These tracks are optimized and the best regarding user desires.

## Processing algorithm

Overall weight = OW = POI weight + Track weight



Let's choose the best generated track, ie. the larger OW value, in the N random end locations based track. Here for instance the best one is the number 1 in green.

### Front end experimentation

UX iteration	1	2	3
Broggi	5.0	7.5	8.0
Palo	7.0	8.0	10.0
Mueller	4.5	6.5	9.0
Zheng	5.0	7.0	8.5
Ave.	5.34	7.25	8.88

Personal evaluation (base 10)

For each iteration, every member give a mark for UX regarding simplicity, efficiency and quality. A new release is built until the average mark reach the threshold fixed to 8/10.