

A person is climbing a large, dark, textured rock face on the left side of the image. The climber is wearing a white dress, a green helmet, and a red backpack. A yellow rope is visible. The background shows a desert canyon with a river, green trees, and a large, light-colored rock formation under a bright sky.

# Exploring Climbing Data

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Climber & Data Scientist

# Climbing Terminology

- **Route:** The path a climber takes on a rock that often has a defined difficulty
- **Grade:** The defined difficulty, many different systems (ex. 5.10a, V3, 6a)
- **Sport, Bouldering, Trad:** Different types of climbing that require different gear and knowledge
- **Leading, Top Roping:** Different styles of climbing with a rope, leading you are putting the rope up and top roping the rope is already up

# My Project 2018

https://github.com/hlandrus/climbing-data



## climbing-data

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### Project Purpose:

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Analyze my personal outdoor climbing data pulled from mountainproject.com. Track improvement in my climbing and work towards my climbing goals.

### Technical Goals and Skills:

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- Programmatically pulling data from an api and caching data based on the api recommendations.
- Organized and compartmentalized data pipeline.
- Apply domain knowledge to transform data.
- Visualize data to work towards purpose.

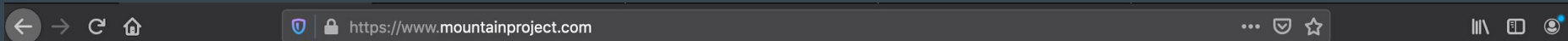
### Future Goals and Project Improvements:

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- Join in more data sources
  - Area specific data - type of rock, altitude, conditions.
  - Weather data for climbing area for specific dates.
  - Expand to include indoor climbing data.
  - Add in tick data from multiple users, need to decide how to get consent. Might be only analyzing friend's data.
- Analyze photos of climbs included in route data, see what feature can be created from them.
- Analyze notes on ticks data.
- Add route prediction. Need more data and more features to achieve this.



# Mountain Project



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COVID-19: At REI, we encourage you to get outside responsibly. Stay local, avoid recreational travel, practice social distancing and check ahead for area and facility closures. [Learn More](#)



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## Route Finder

Tell us what you like, we'll tell you what to climb!

Location: [All Locations](#) [Change](#)

Quality: [All routes](#)

Pitches: [Any number](#)

Type: [Rock](#)

[5.7](#) to [5.11d](#)

☒ Trad ☒ Sport ☒ Toprope

[Find Routes](#)

## Forum Posts

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☒ Include "For Sale" Posts

Advice on beginning a trad rack? ..... 4 mins ago  
The last time you almost died while climbin... ..... 5 mins ago  
Ideal climbing camera? ..... 7 mins ago  
Quicklink gate unscrewed when lead soloing ..... 9 mins ago  
WTT OR WTS: Evolv x1 and La Sportiva Solu... ..... 9 mins ago  
Comprehensive big wall how-to thread? ..... 9 mins ago  
Barter thread ..... 10 mins ago  
New and Experienced Climbers Over 50 #11 ..... 12 mins ago  
Any climbers who have already recovered fr... ..... 12 mins ago  
FS/Trade: TC Pro sz. 44.5, Anasazi Pinks sz... ..... 14 mins ago  
Semi-educated predictions on when we can ... ..... 14 mins ago  
BD Cams, 44 Solutions & Mythos, Draws, M... ..... 19 mins ago  
WTB: #2 Metolius mastercam ..... 19 mins ago  
Tips for Denali ..... 21 mins ago

# Mountain Project: Route Page

- Name
- Grade (Difficulty)
- Type
- Height
- Description
- Photos
- Location
- Comments

All Locations > Oregon > Central Oregon > Smith Rock > (k) The Dihedrals

[Improve This Page](#) ▼

[Add To Page](#) ▼

## Crossfire [✎](#)

**5.12b** YDS ★★★★★ Avg: 3.9 from 36 votes

Type: Sport, 115 ft

FA: Alan Watts 5/84

Page Views: 10,556 total · 61/month

Shared By: [Karsten Duncan](#) on Jan 26, 2006

Admins: [Kevin MP](#), [Micah Klesick](#), [Nate Ball](#)

### You & This Route 36 Opinions

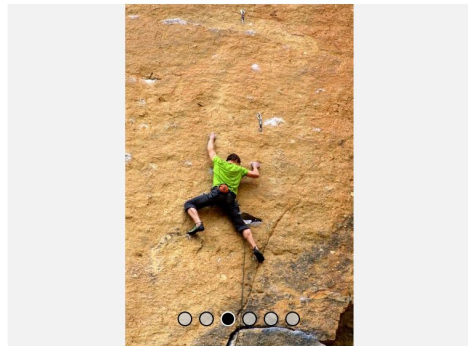
Your To-Do List: [Add To-Do](#) · [View List](#)

Your Star Rating: [★](#) [★](#) [★](#) [★](#) [★](#)

Your Difficulty Rating: -none- [Change](#)

Your Ticks: [Add New Tick](#)

-none-



⚠ **Access Issue:** Smith Rock CLOSED for COVID-19 [Details](#) ▼

## Description [✎](#)

Crossfire is a striking line that requires a variety of climbing skills from handjams to tiny crimp cruxes and hellacious endurance. Slightly overhanging the entire way, the climbing is spectacular. Fantastic jams down low on [Karate Crack](#) lead to classic Smith face climbing up higher on nubins, pockets, and crimps. Several semi-rests make the marathon pitch seem plausible but still pumpy and interesting.

The route begins up Karate crack. As [Karate Crack](#) arches right, leave the crack and continue straight up the face. After placing a large cam in a pod above the crack you'll enter the sport part of the climb. This climb is commonly said to have two cruxes. One down low is reachy, thin, and crimpy but short while up higher you'll go through a sequential endurance sequence. There are several runout sections especially up high as you traverse to the left to finish. Mercifully the climbing is easier and the wall is steep but more than one climber has experienced an exhilarating fall there.

# Mountain Project: User Profile



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**Hanna Landrus**  
Seattle

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[Contact Hanna](#)

Member Since  
Jan 25, 2018  
Last Visit: 28 mins ago

5 Points  
Point Rank: #33,910 [Details](#)

[More Info](#)

[Out There \(61\)](#) [Contributions \(1\)](#) [Community \(13\)](#)

## To-Do List [Sort & Filter All 29](#)

	Southern Nevada > ... > Fin du Monde Dr... > Dirty Rail Area	★★★★★ 34	V7 Boulder	To-Do	
	Central Oregon > ... > (I) Christian B... > Christian Brothers -...	★★★★★ 334	5.10b Sport	To-Do	
<a href="#">Portrait of a Jigsaw Burger</a>	Central Region > Frenchman Coule... > Clearview Crag	★★★★★ 17	5.11a/b Sport	To-Do	
<a href="#">Stemmin' Ms</a>	Central Region > Frenchman Coule... > M & M Wall	★★★★★ 20	5.12a Sport	To-Do	
<a href="#">A Girl's Best Friend</a>	Central-W Casca... > ... > Exit 38: Far Side > Gritscone	★★★★★ 35	5.11a Sport	To-Do	
<a href="#">Easy Money</a>	Central-W Casca... > ... > Exit 38: Decept... > Kiosk Rock	★★★★★ 8	5.11a PG13 Sport	To-Do	

## Ticks [View All 32](#)

	Central-W Casca... > ... > Overhaul Area > Slabrage Patch	★★★★★ 29	5.9 Sport	✓ 1
<i>Nov 23, 2019 · Lead / Onsight.</i>				
<a href="#">Controlled bleeding</a>	Central-W Casca... > ... > Overhaul Area > Relief Camp	★★★ 3	5.10b Sport	✓ 1
<i>Nov 23, 2019 · Lead / Onsight.</i>				
<a href="#">Shelf Service</a>	Central-W Casca... > ... > Overhaul Area > Relief Camp	★★★ 23	5.10a Sport	✓ 1
<i>Nov 23, 2019 · Lead / Flash.</i>				
<a href="#">Opening Act</a>	Central-W Casca... > ... > Exit 32 / Littl... > World Wall	★★★ 47	5.9 Sport	✓ 1
<i>Sep 7, 2019 · Lead / Onsight.</i>				

# Mountain Project: User Profile Tick Stats

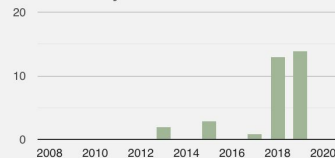
## Desired Improvements:

- Show “Rock Routes by Grade” by style (lead, toprope) and more detailed grade
- Be able to see improvement in grades

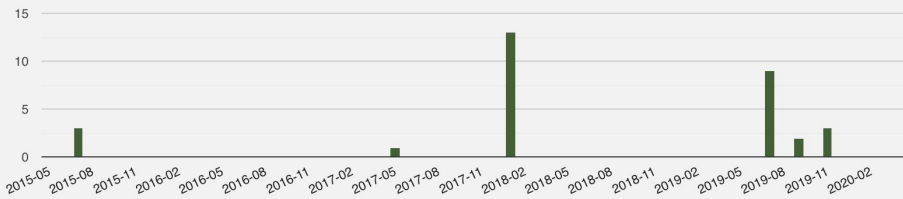
### Tick Breakdown

	Pitches	Routes	Days Out
90 Days	0	0	0
Last Year	14	14	4
5 Years	31	31	10
All Time	33	32	11

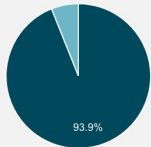
### Pitches By Year



### Pitches By Month



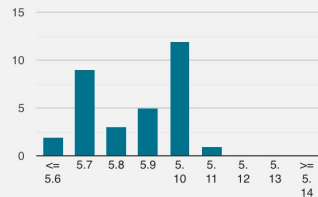
### Trad / Sport / Boulder



### Boulders By Grade



### Rock Routes By Grade



# Mountain Project: APIs



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## Mountain Project Data API

Mountain Project provides a simple API with access to certain limited data. All of the data returned by the API is already available on publicly available pages on the Mountain Project site. Returned data is json.

### Method: `getUser`

Returns general user information.

#### Required Arguments:

key - Your private key

userId - The ID of the user to return

email - The email address of the user to return

\* Either userId or email is required, but not both.

#### Example:

[https://www.mountainproject.com/data/get-user?email=EMAIL&key=YOUR\\_KEY\\_HERE](https://www.mountainproject.com/data/get-user?email=EMAIL&key=YOUR_KEY_HERE)

#### Notes:

All returned fields will always be defined, but many are optional for the user and could be empty.

### Private Key

[Sign up or log in to get your key](#)

All requests require a private key that identifies you. Usage of the API is at Mountain Project's sole discretion and may be discontinued at any time. We track every request – be sure your code caches data and does not make excessive requests or your account will be deactivated.



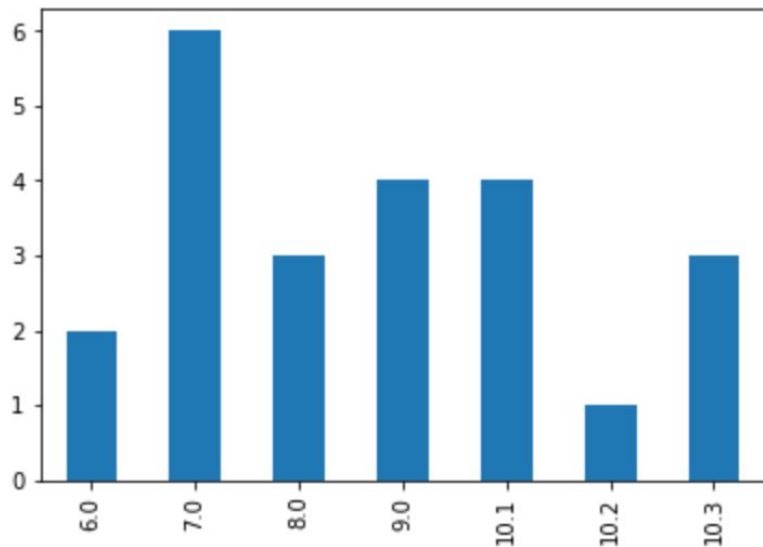
# Challenges

- Climbing grades are weird
  - Played with different ways to normalize them
- Didn't have much of my own data in Mountain Project
  - 2018 Borrowed a friend's user id
  - Started logging my own climbs for the future
  - 2020 I have a bit more so more useful now
- New to calling APIs
  - Learned about pagination
  - Learned about following API recommendation on caching and usage
- I was much more comfortable in a notebook environment
  - Worked on creating a hybrid project with most of the logic and guts of the program in files but visualizations in a notebook

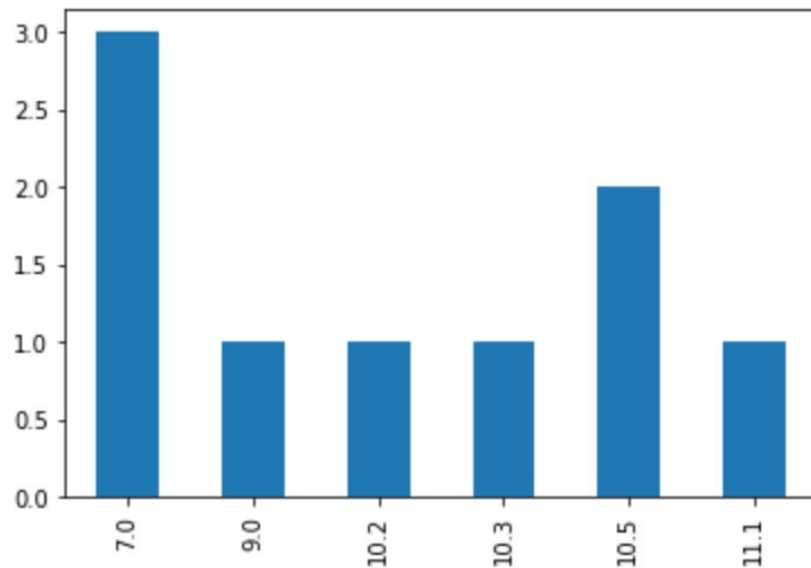


# Climbs by Grades and Style

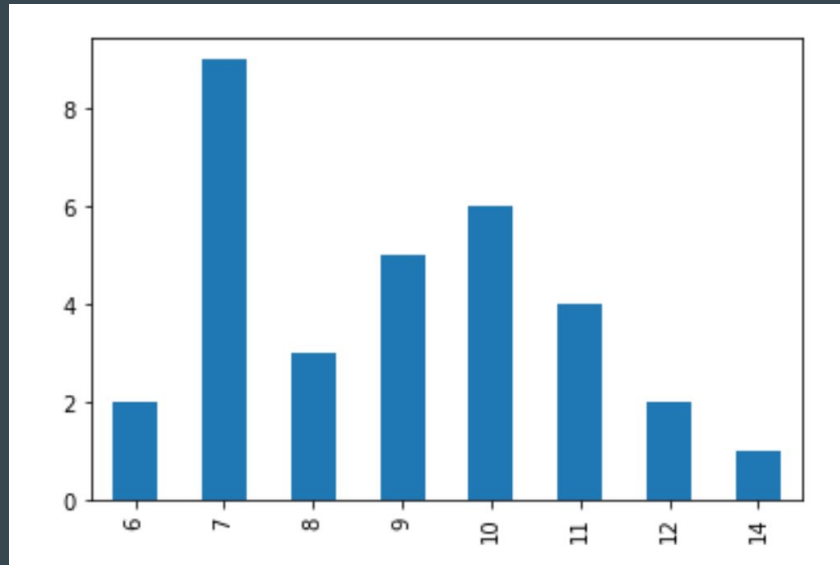
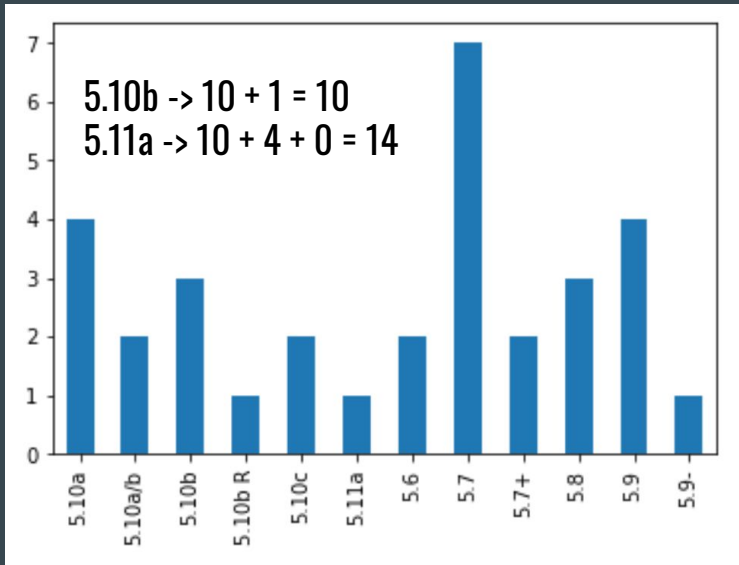
Lead Total Climbs: 23 Average Rating: 8.50



TR Total Climbs: 9 Average Rating: 9.18



# Climbing Grades

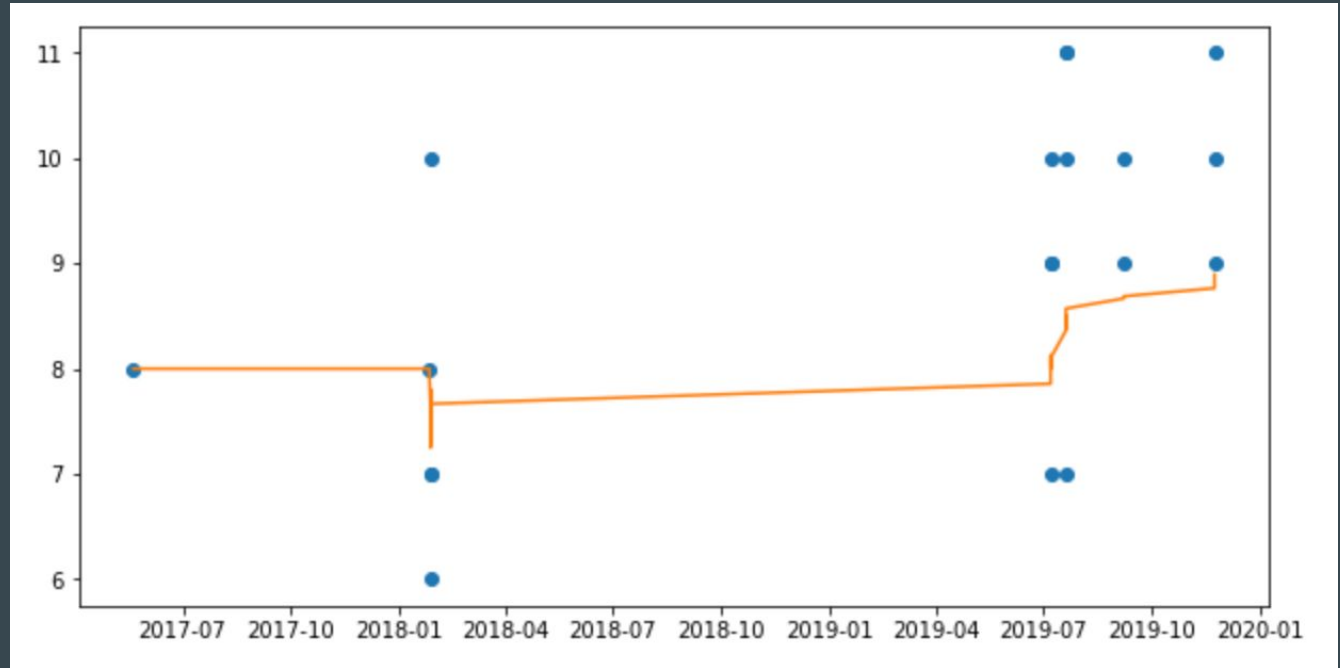
[illegible]



# Some improvement over time...

Each blue dot is one climb.

The orange line is the rolling average



## Conclusions:

1. Climbing grades are weird
2. I should climb more once this is over

Thank You  
@Hanna on slack

Links:

Project: <https://github.com/hlandrus/climbing-data>

API: <https://www.mountainproject.com/data>

Photographer: <https://gwenshoemaker.com>