

# **AI506: Data Mining and Search (Spring 2020)**

## **Homework 2: Personalized PageRank**

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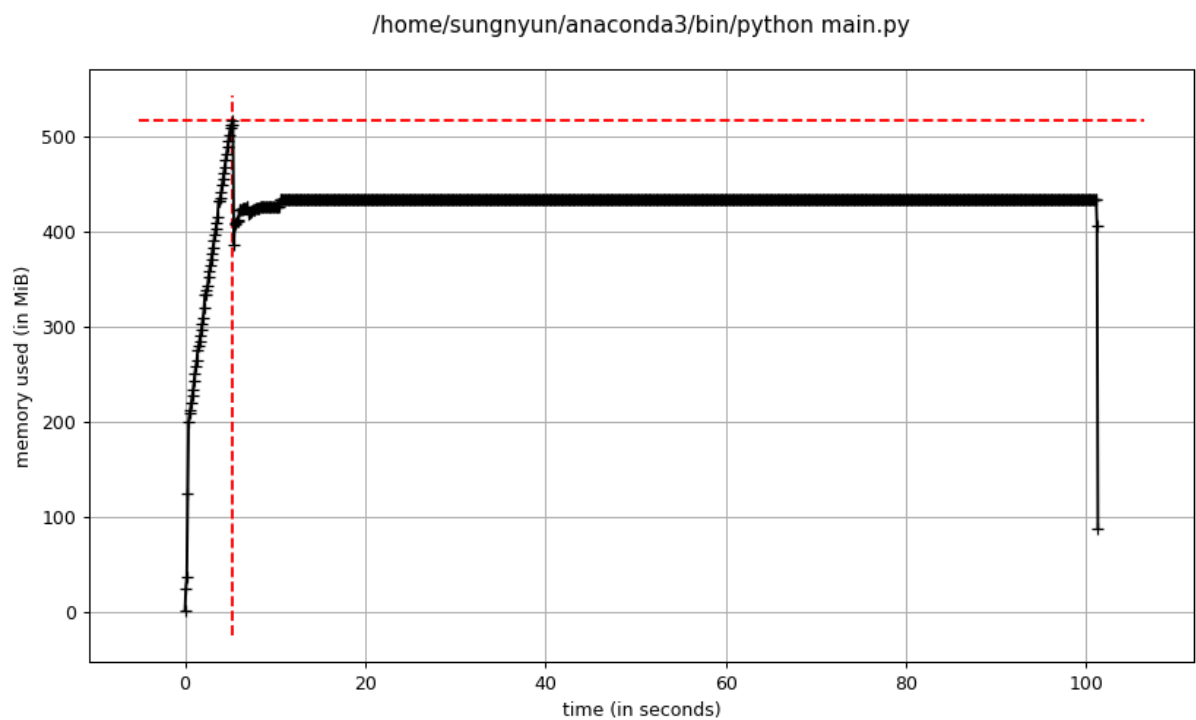
# 1 Result

## 1.1 memory-based implementation with uniform preference

### 1. result

```
[Iter 61]      Delta = 1.09128
[Iter 62]      Delta = 9.22274
-----Top 10 pageranks-----
89073  0.01130286914620105
226411 0.009267836978094322
241454 0.00829727654695967
262860 0.0030231228537144286
134832 0.0030012795689168406
234704 0.002571732823778226
136821 0.002453713639177782
68889  0.00243079058230633
105607 0.0023910470351994877
69358  0.002364014467848517
```

### 2. memory/time usage

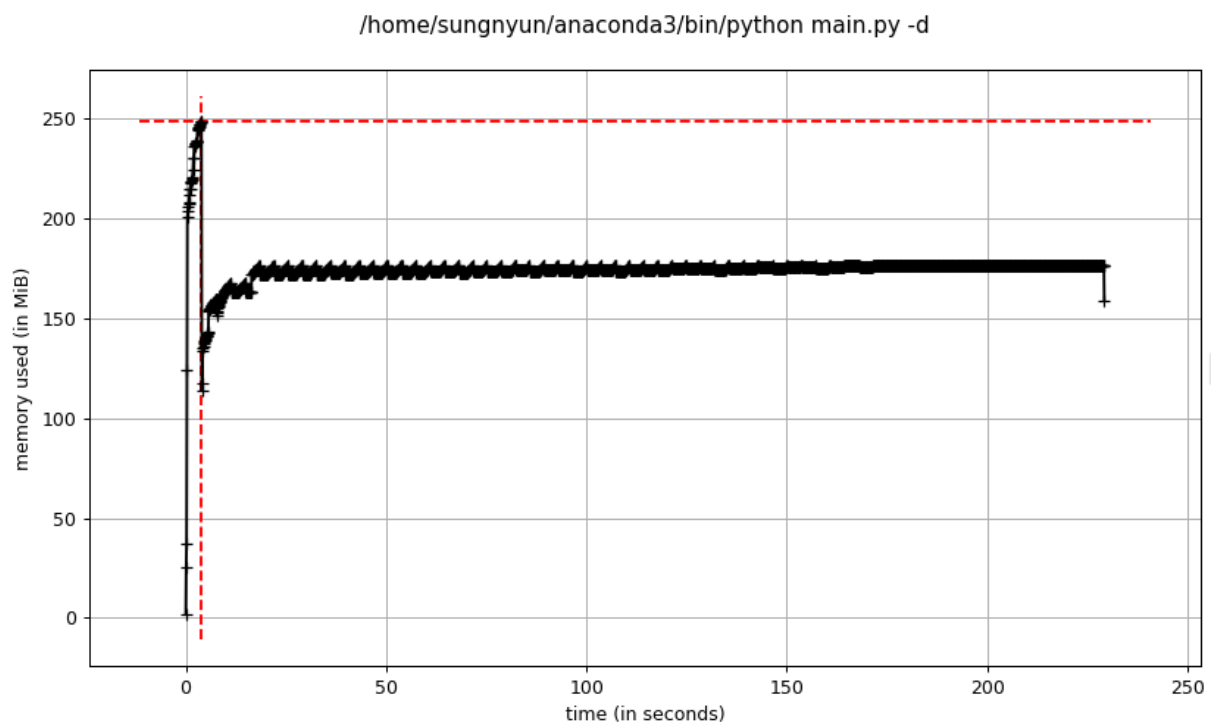


## 1.2 disk-based implementation with uniform preference

### 1. result

```
[1001 02] 0.011302869146200996 9.2227
-----Top 10 pageranks-----
89073 0.011302869146200996
226411 0.00926783697809322
241454 0.008297276546959534
262860 0.0030231228537143944
134832 0.0030012795689166338
234704 0.0025717328237781457
136821 0.0024537136391776814
68889 0.002430790582306238
105607 0.002391047035199403
69358 0.0023640144678484455
```

### 2. memory/time usage

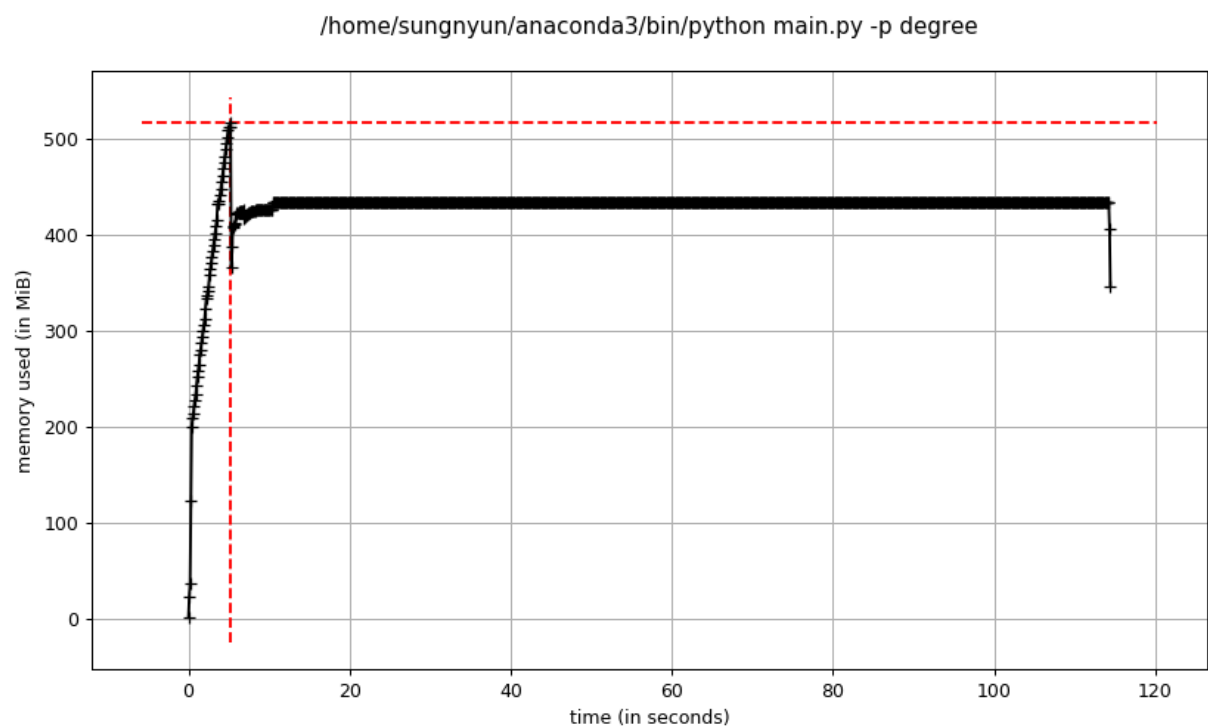


### 1.3 memory-based implementation with degree preference

#### 1. result

```
-----Top 10 pageranks-----  
226411 0.011933533511421734  
89073  0.009504496880015147  
241454 0.0069865426358553424  
105607 0.005217696271903702  
234704 0.004534109653610416  
167295 0.004267165314692564  
38342  0.003899737090862187  
181701 0.0033670410494958765  
247241 0.0032991169628781166  
259455 0.0032991169628781166
```

#### 2. memory/time usage

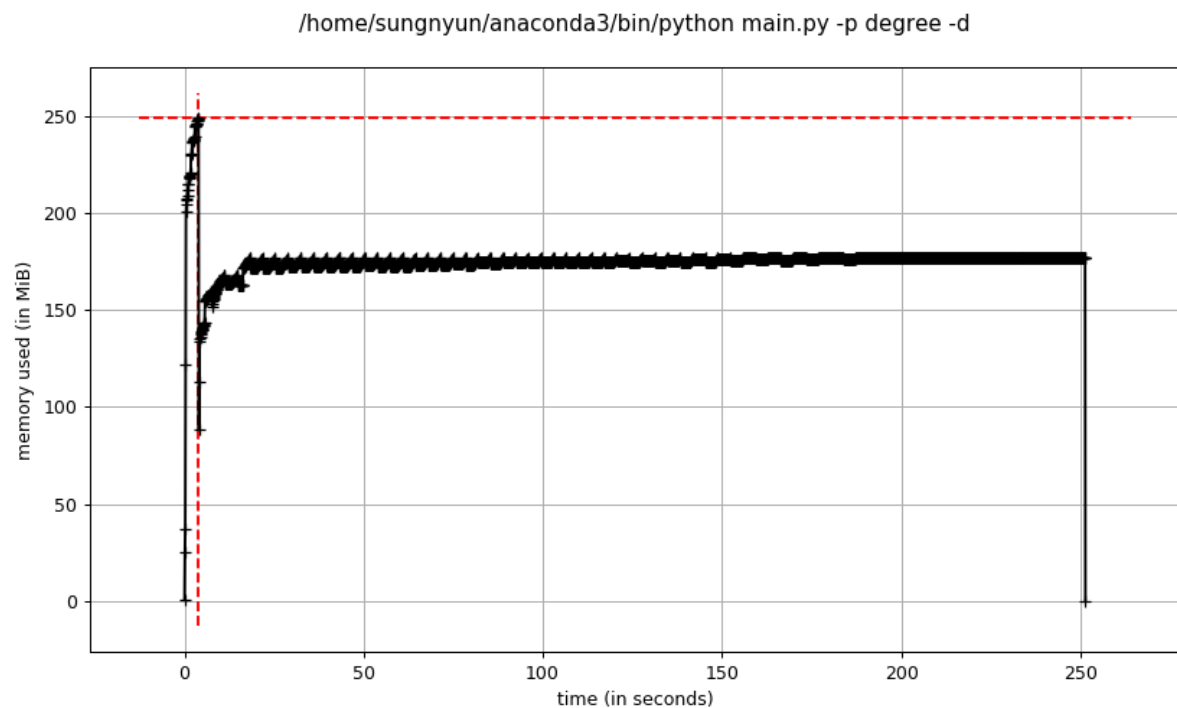


## 1.4 disk-based implementation with degree preference

### 1. result

```
-----Top 10 pageranks-----  
226411 0.011933533511421617  
89073  0.009504496880015121  
241454 0.00698654263585517  
105607 0.005217696271903549  
234704 0.004534109653610044  
167295 0.004267165314692305  
38342  0.003899737090861933  
181701 0.0033670410494958036  
247241 0.0032991169628780364  
259455 0.0032991169628780364
```

### 2. memory/time usage

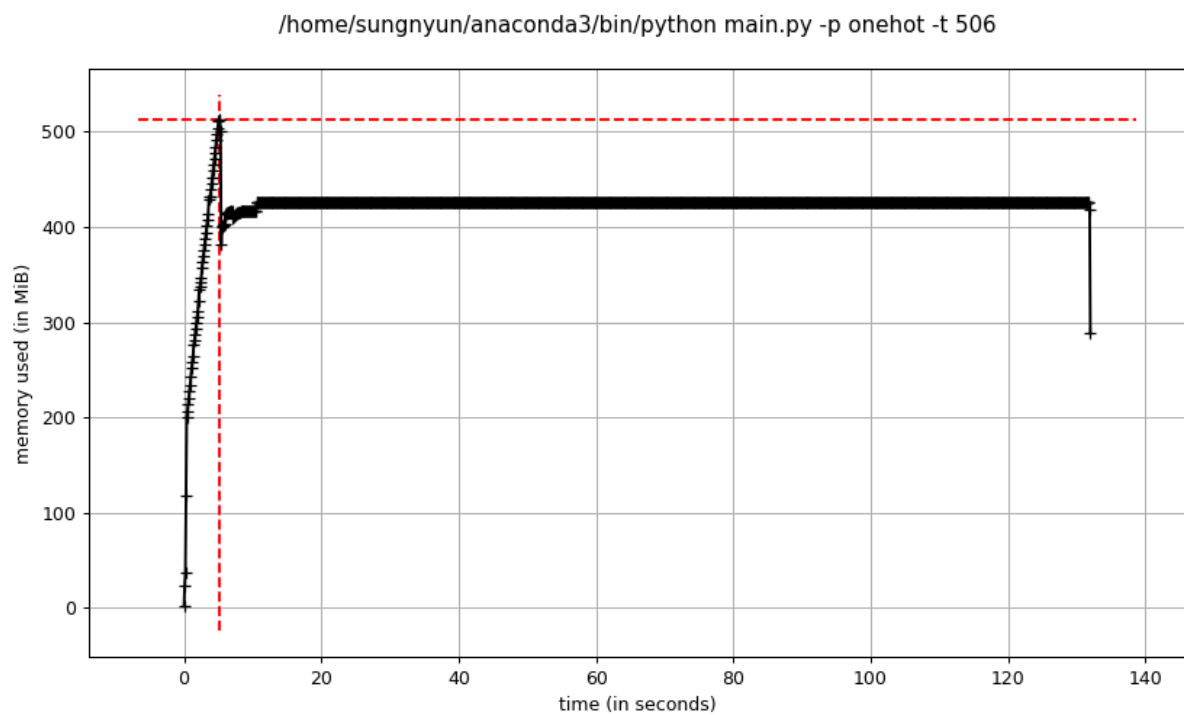


## 1.5 memory-based implementation with one-hot preference (506)

### 1. result

```
-----Top 10 pageranks-----  
506      0.15418465850526586  
213780   0.11680293315910936  
129971   0.10917525189177463  
118948   0.09914294399699086  
194930   0.09914294399699086  
24726    0.09914294399699086  
152422   0.022568876136509188  
52820    0.022144001315107412  
223264   0.01717716111213681  
252200   0.01717715194667512
```

### 2. memory/time usage



## 1.6 disk-based implementation with one-hot preference (506)

### 1. result

```
[1001 70] 0.15418465850528287
-----Top 10 pageranks-----
506      0.15418465850528287
213780   0.11680293315910899
129971   0.10917525189177438
24726    0.09914294399699078
118948   0.09914294399699078
194930   0.09914294399699078
152422   0.02256887613651006
52820    0.022144001315107267
223264   0.01717716111213804
252200   0.017177151946676347
```

### 2. memory/time usage

