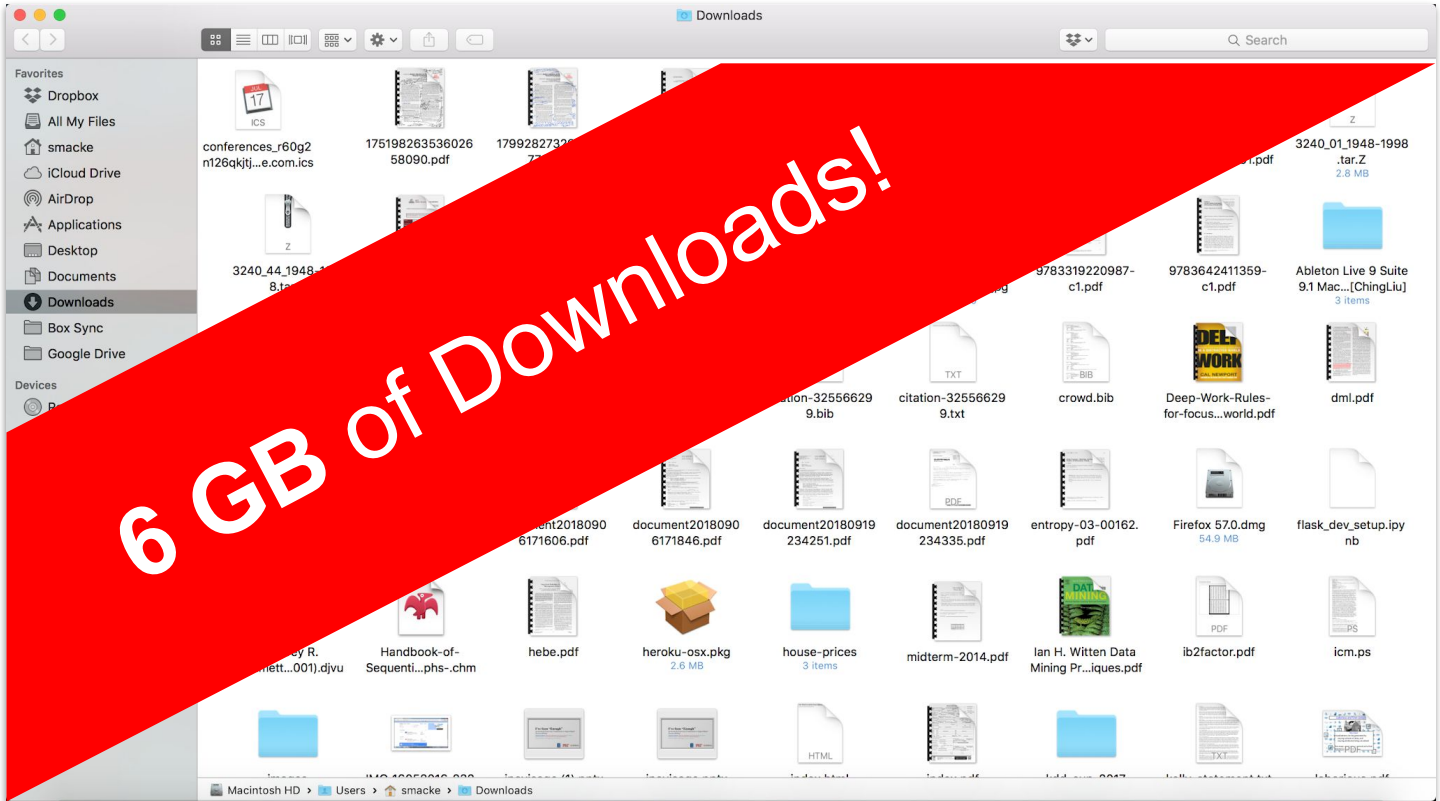
Sophie Chen

AI Folder Genie

Download Files where they Belong!

Disorganized File Structure!

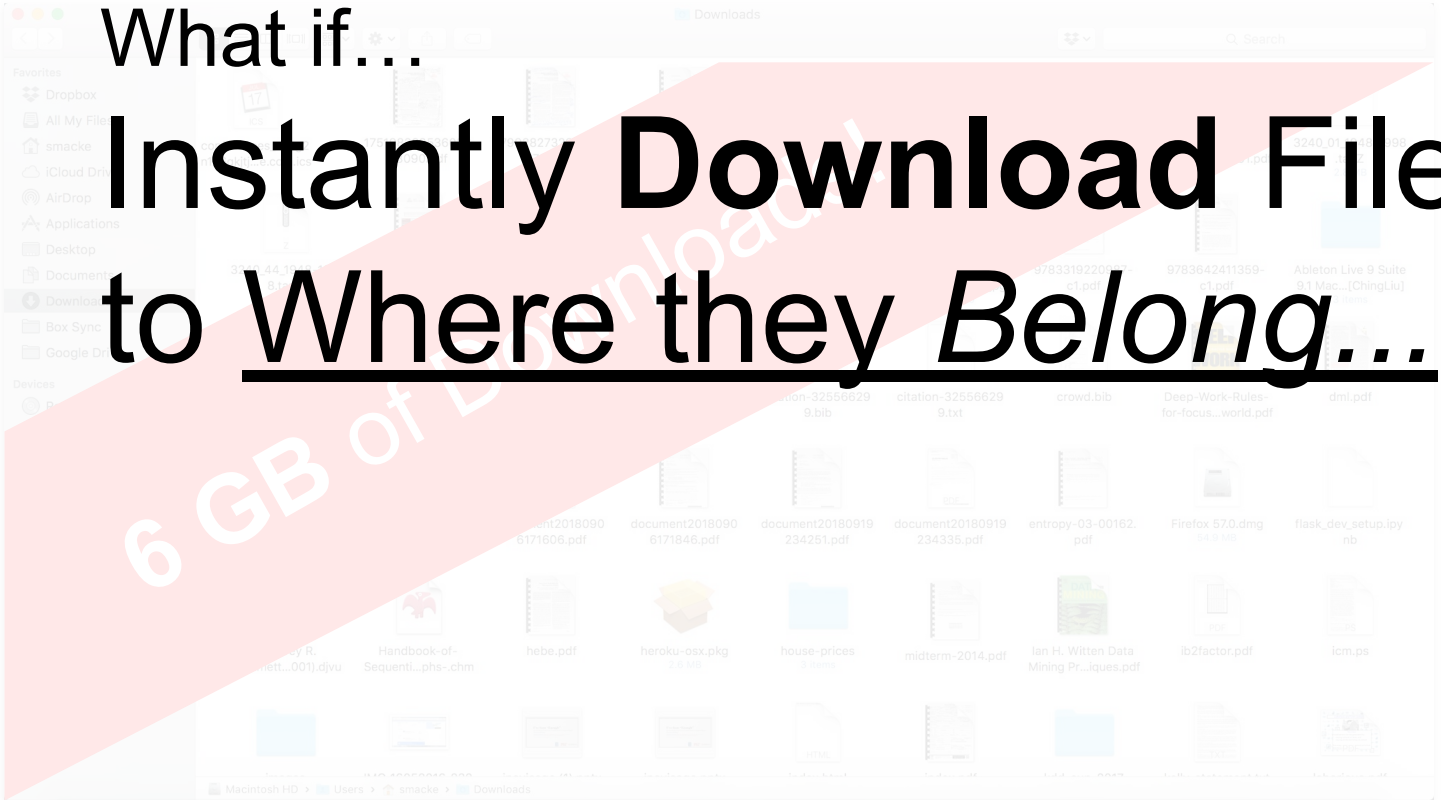
Too many files in Downloads Folder



6 GB of Downloads!

Disorganized File Structure!

Too many files in Downloads Folder



What if…

Instantly **Download** Files to Where they *Belong*...

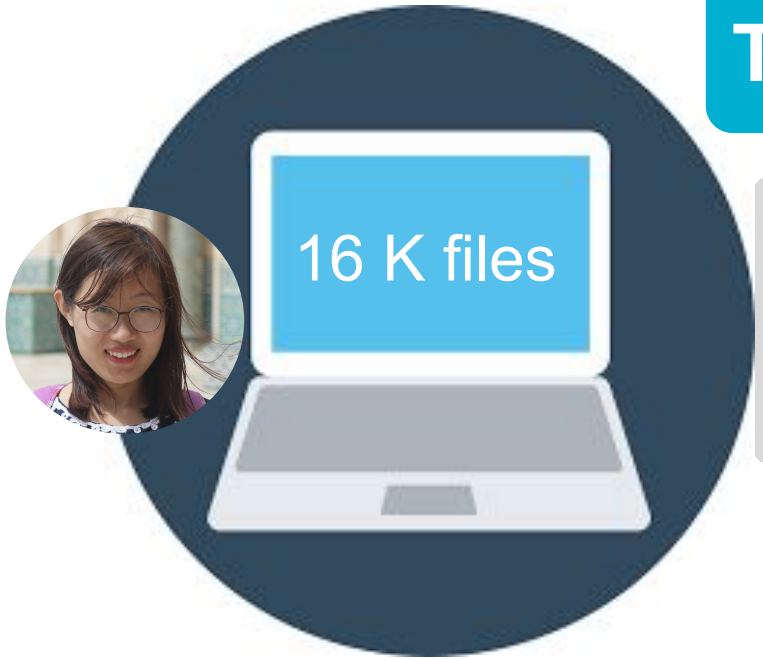
AI Folder Genie

available in the chrome web store

Predict the ***Best*** Folder/Sub-Folder

for *YOUR* **Download**,

for *YOUR* **File System**!



Text Classification

- **File** names (features)
- **Folder** names (labels)

Processed **file names** with  Natural Language Analyses with NLTK and 

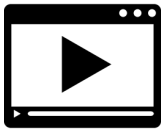
'CP 2006 Theoretical potential energy surfaces for excited mercury trimers.pdf'

'cp', '2006', 'theoret', 'potenti', 'energi', 'surfac', 'for', 'excit', 'mercuri', 'trimer', 'pdf'

Extract the Features

CS
ipynb
output

Pictures
img
jpg



Videos
mp4
v1

Hierarchical Labels

Files in:

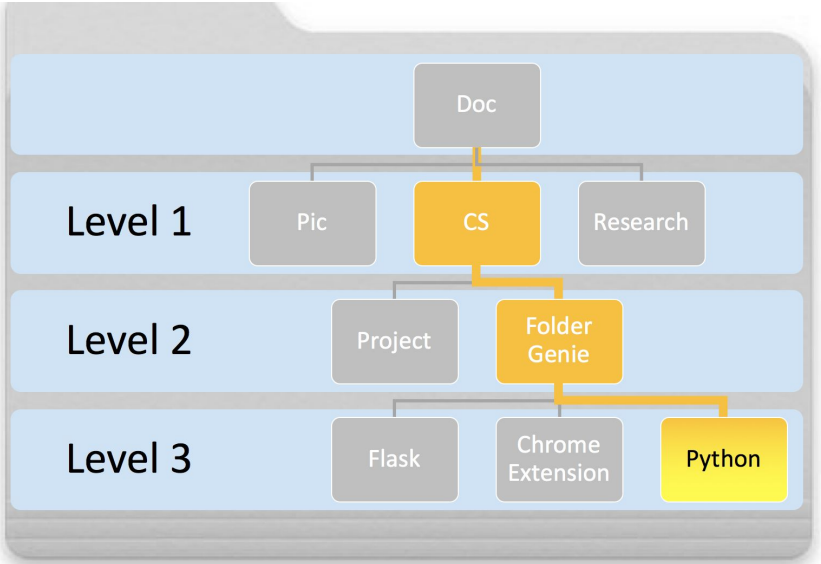
`Doc/CS/FolderGenie/Python`

Hierarchical labels:

Level 1: `CS`

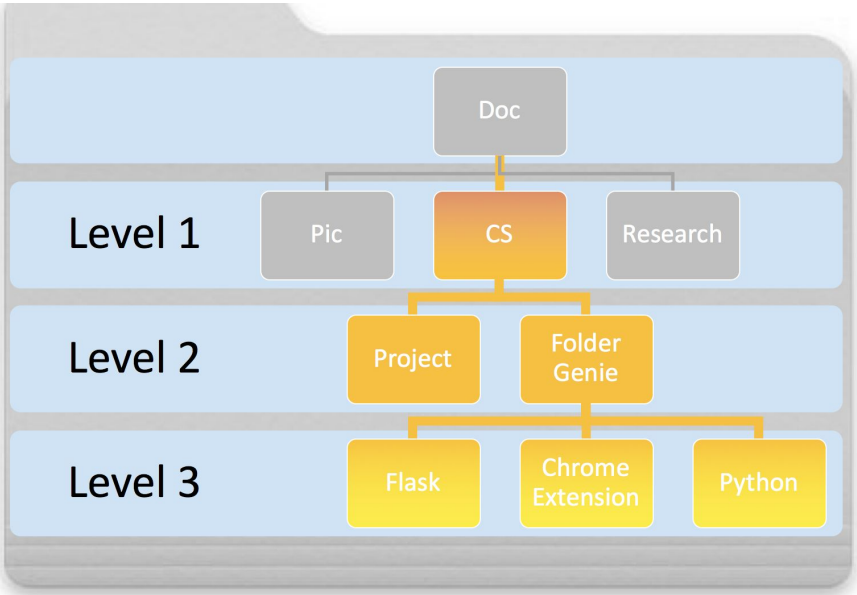
Level 2: `CS/FolderGenie`

Level 3: `CS/FolderGenie/Python`



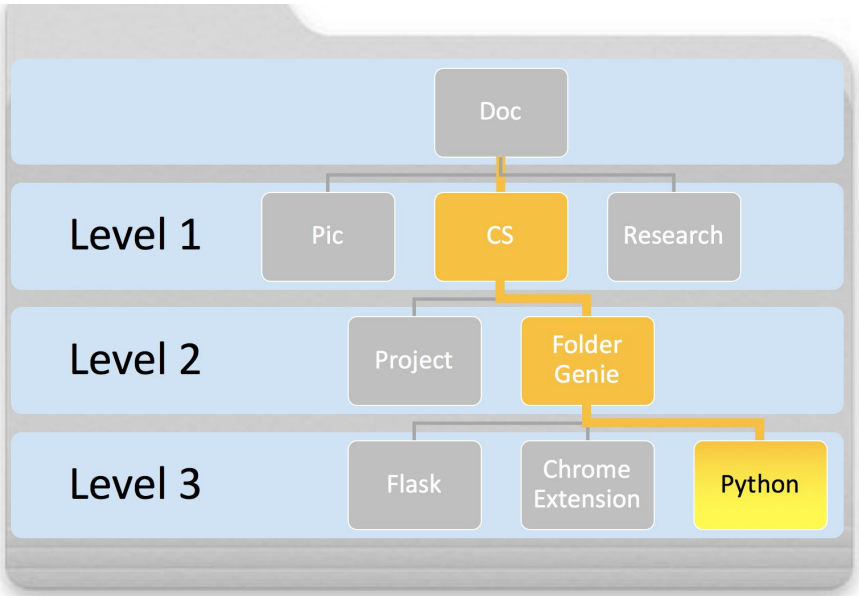
Hierarchical Classification

Softmax classifier trained at each folder

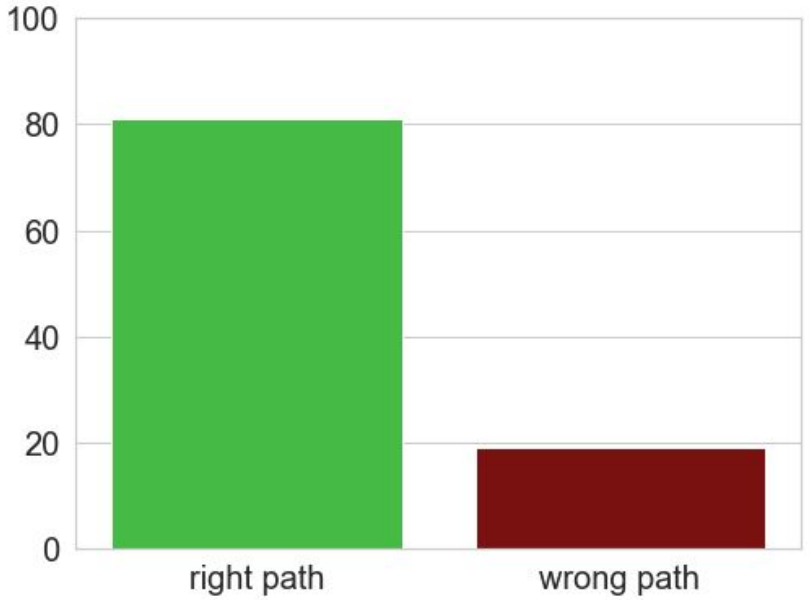


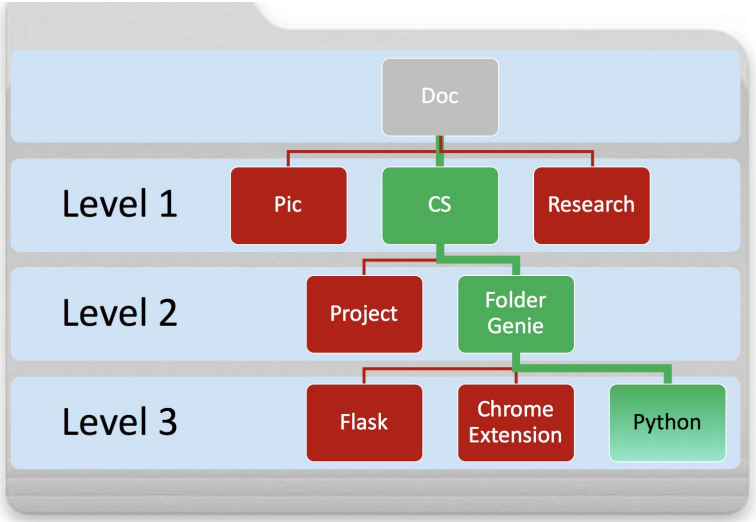
Hierarchical Classification

Predictions only advance deeper when confident

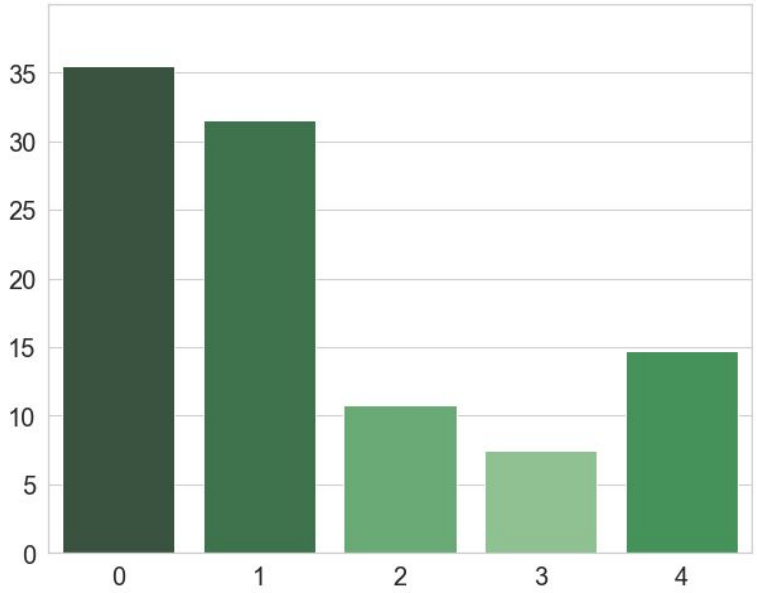


81% go to ***Right Path!***

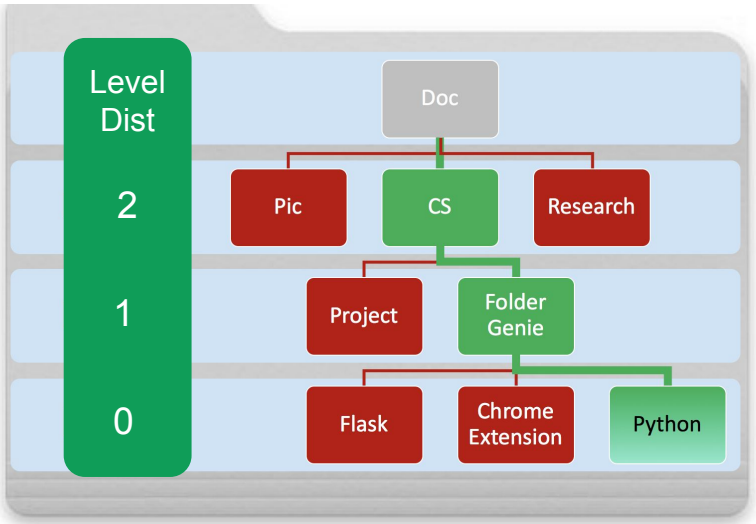




69% go to ***within 1 level distance!***



Level distance = actual - predicted



local file folder levels: 9 in total
first 5 considered for predictions

Sophie Chen

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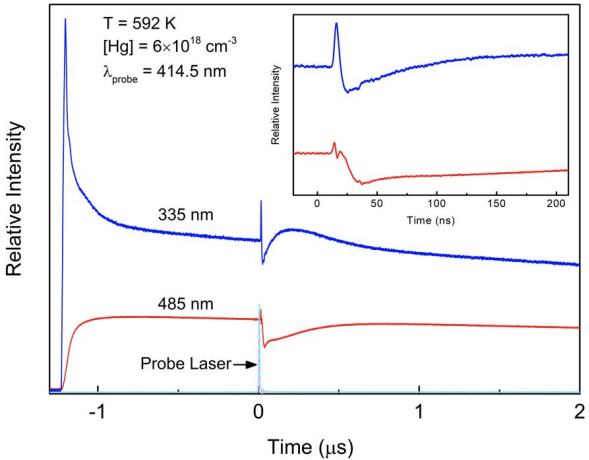
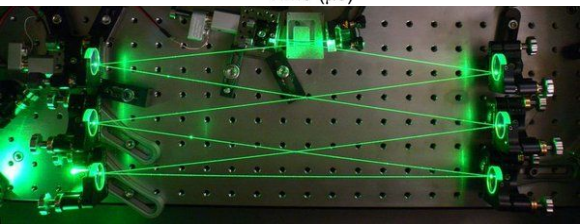
Linkedin: Sophie-Chen-Data





Thank you for attending my talk!

Welcome to try

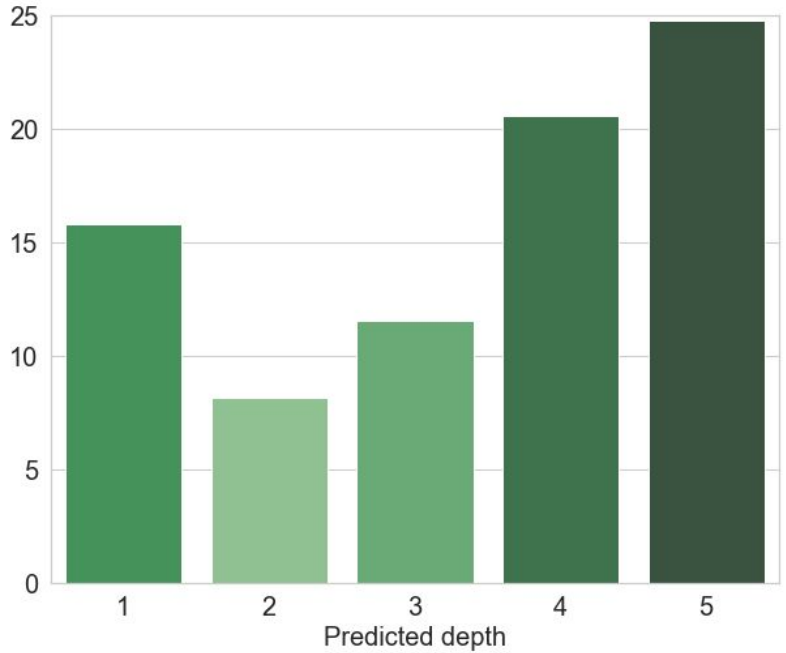
AI Folder Genie

available in the
chrome web store

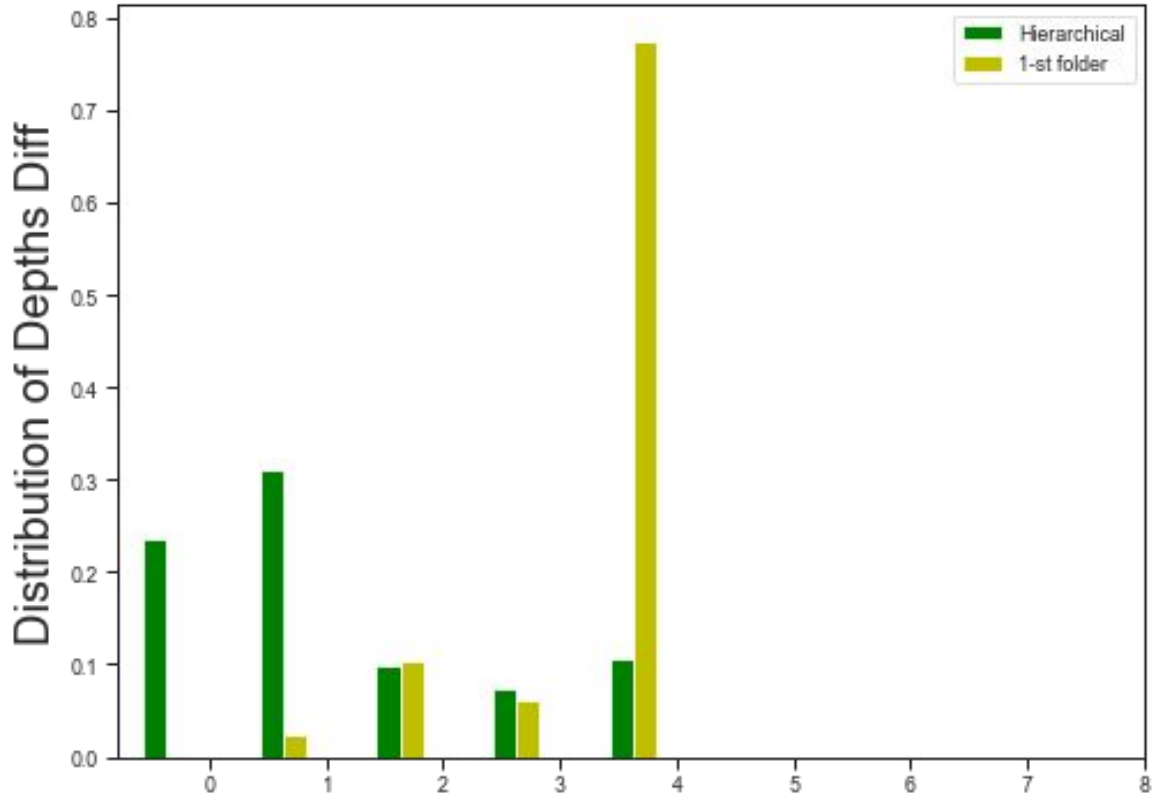
Future Plans

- Chrome Extension + Desktop App: sync between all devices, Dropbox…
- Output a list of choices
- Features: metadata, NLP folder names, included folder names as part of features

Predicted Depths



local file folder levels: 9 in total;
first 5 considered for predictions


Distribution of Depths Diff
Hierarchical
1-st folder
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0
1
2
3
4
5
6
7
8

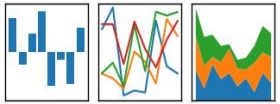
'CP 2006 Theoretical potential energy surfaces for excited mercury trimers.pdf'

'cp', '2006', 'theoret', 'potenti', 'energi', 'surfac', 'for', 'excit', 'mercuri', 'trimer', 'pdf'

Natural Language Analyses with NLTK

pandas

$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$



Original File Name

Remove - _ .

Tokenize

Stem

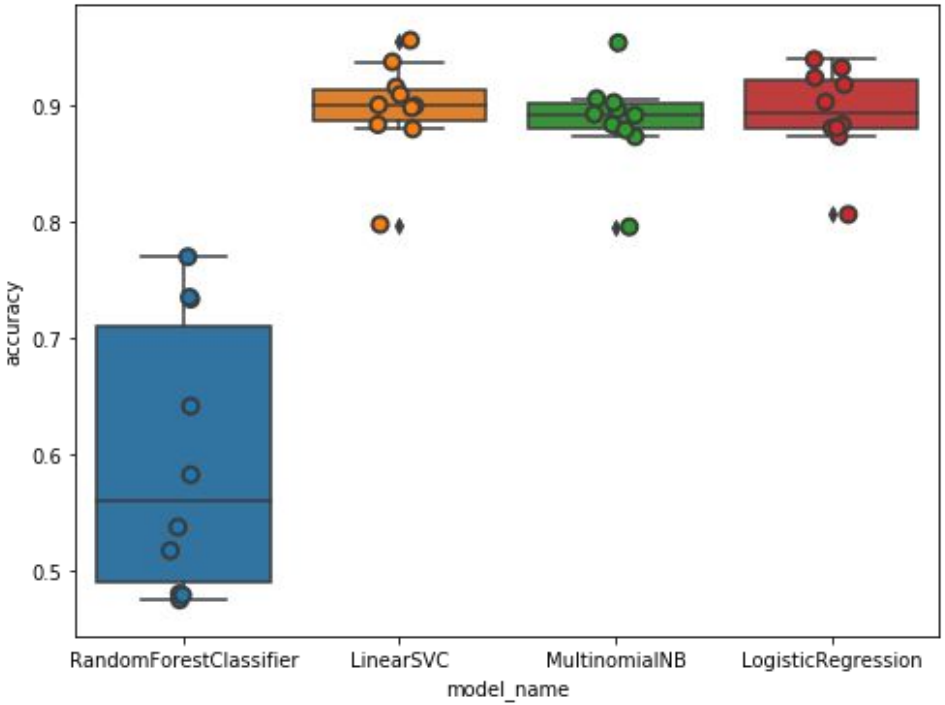
Remove Stop Words

tf-idf

Feature Engineering

['CP-2006-Theoretical-potential-energy-surfaces for excited mercury trimers.pdf']
['cp-2006-theoretical-potential-energy-surfaces for excited mercury trimers.pdf']
[['cp', '2006', 'theoretical', 'potential', 'energy', 'surfaces', 'for', 'excited', 'mercury', 'trimers', 'pdf']]
[['cp', '2006', 'theoret', 'potenti', 'energi', 'surfac', 'for', 'excit', 'mercuri', 'trimer', 'pdf']]
['cp 2006 theoret potenti energi surfac for excit mercuri trimer pdf']

Multi-labeled Logistic Regression Text Classification

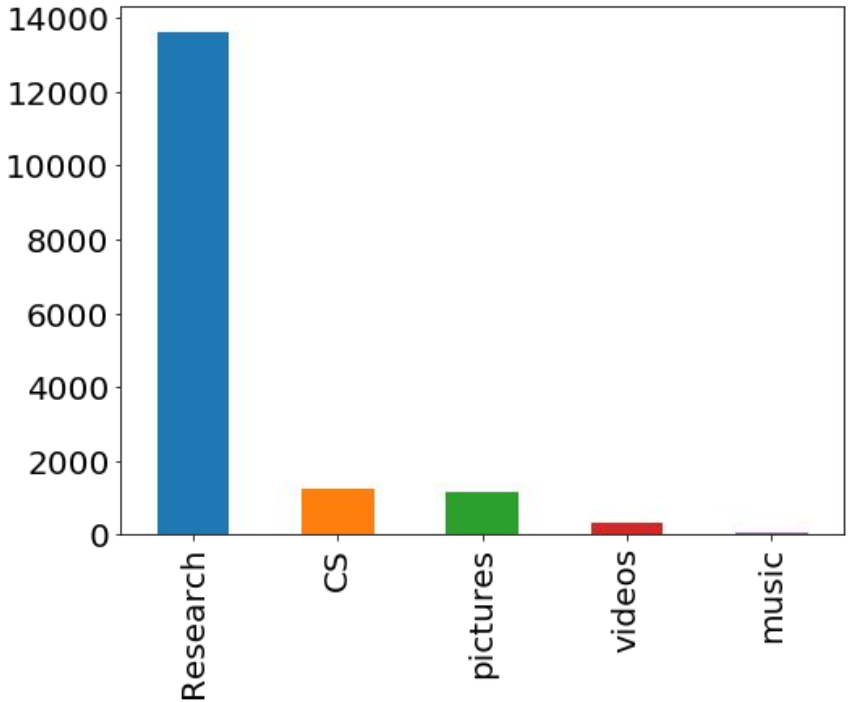


Logistic regression:

Fast, stable, with predict_prob

1st-depth AUC >0.9

Text Classification: Softmax Regression



Text Classification:

- Logistic Regression
- 1st-Folder AUC 90%

Challenges:

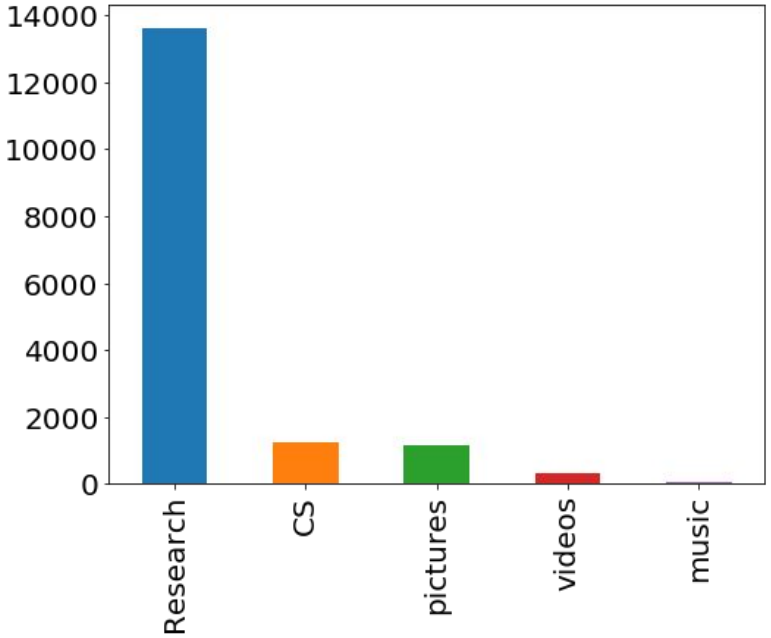
- Varied depth of folders
- 2st-Folder AUC 65%
- Files live in interior nodes

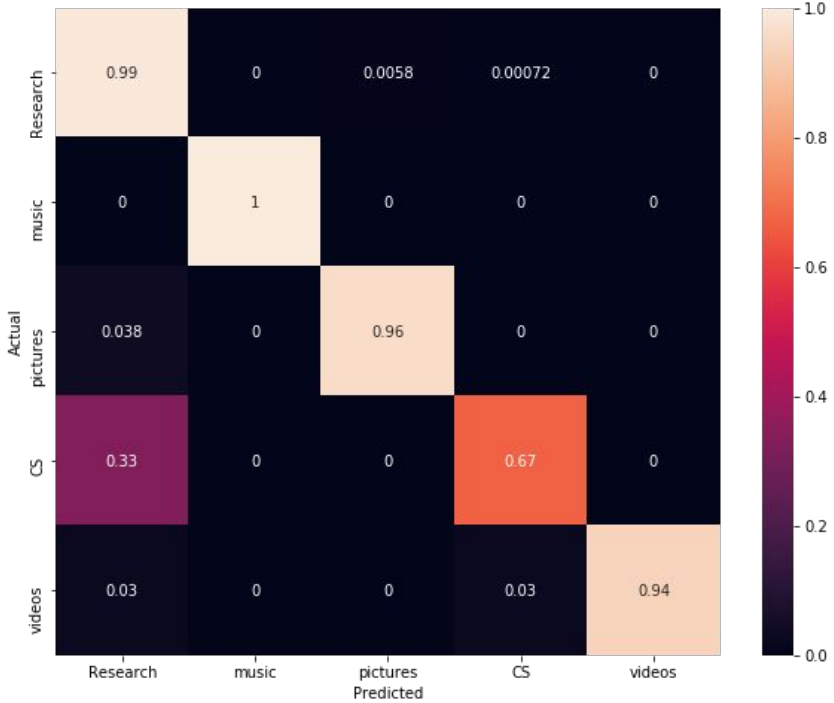
Solutions:

- **Hierarchical Classification**

Text Classification: Softmax Regression

- 16400+ files in total
- 1st split accuracy > 90%





How does it work?

Data

Feature Engineering

Label Engineering

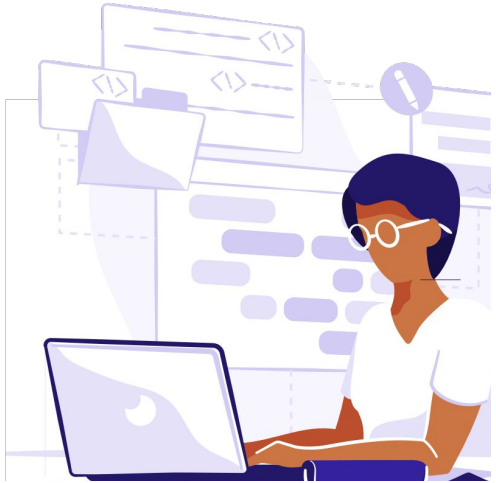
Classifier Picking

Hierarchical Classification (wrote my own algorithm)

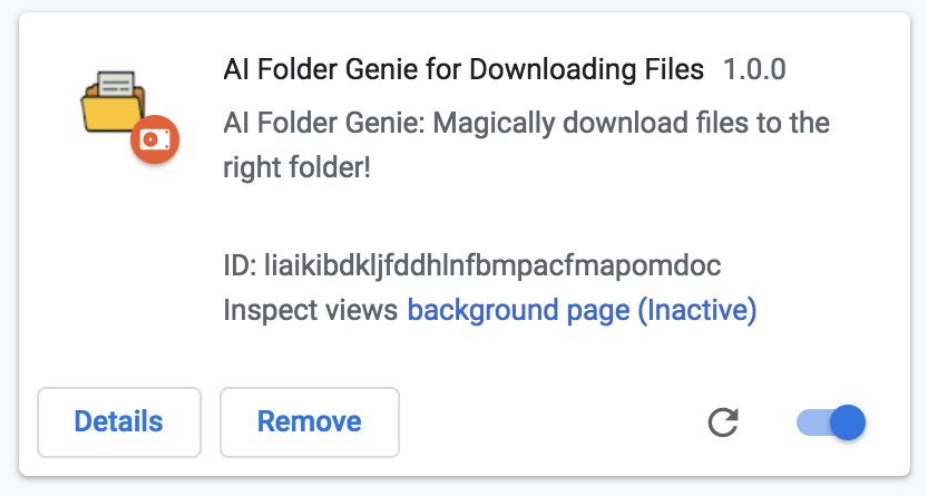
Move files (symbolic links)

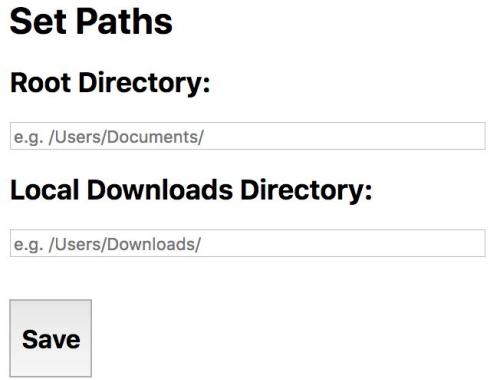
User Cases

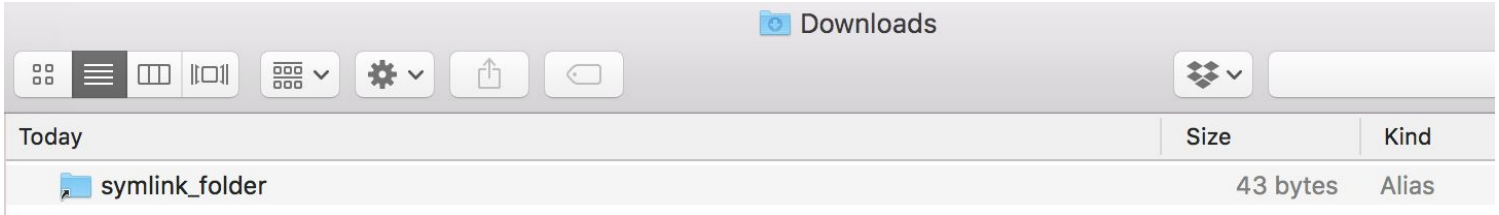
- Email Attachments
- Social Media Photos
- Cloud Shared Files
- Github Codes
- Digital Music
- ...



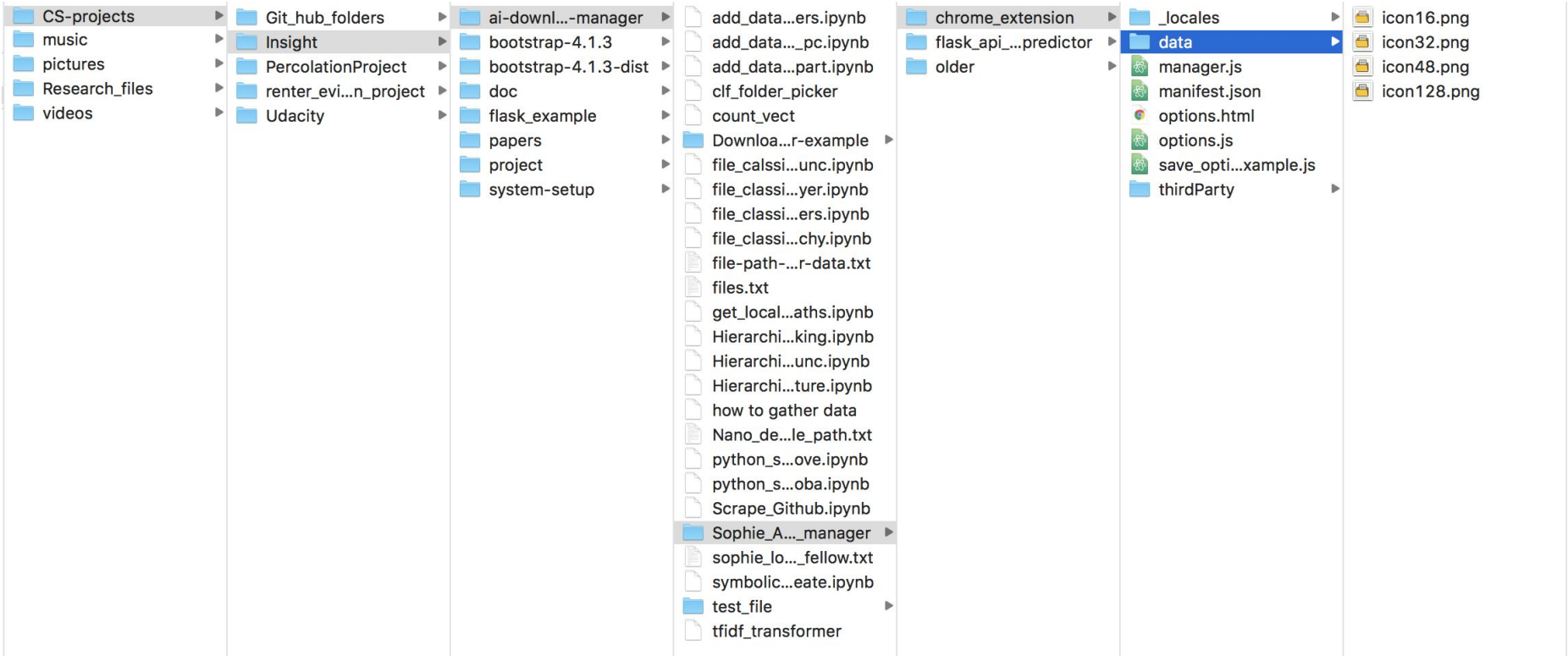
AI Folder Genie Chrome Extension



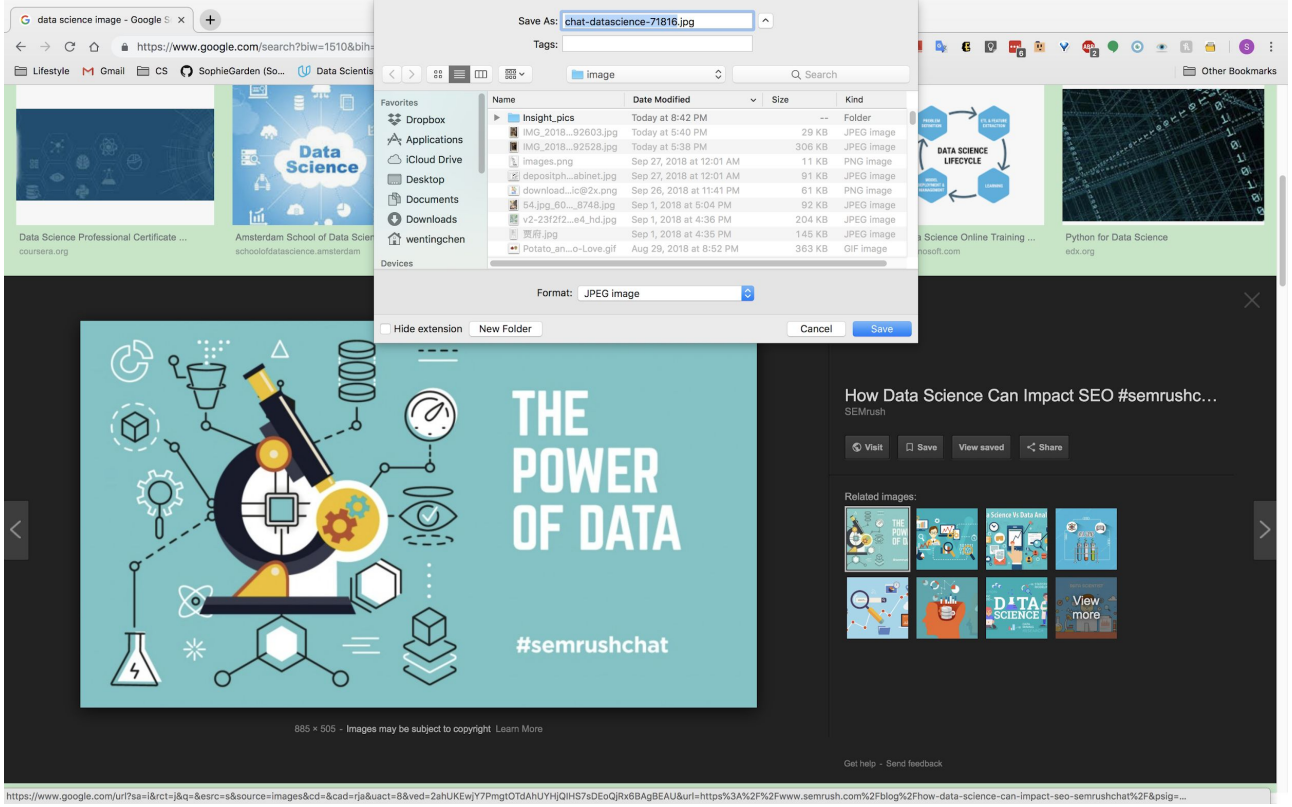




Sophie's Folder Structure



2 levels: /pictures/image/



1 level: /Research_files/