

# Your Laptop is not a Bop-It!



Leveraging the Power of Your Keyboard to  
Improve the Developer Experience

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# Overview

- My Origin Story
- Minimising Cognitive Load
  - Economy of Movement
  - Economy of Search
- Questions

# Part I: My Origin Story

# My Origin Story

- Undergrad in Physics ('94 - '96)
  - Windows 3.1
  - MS Word / Excel
  - Mouse Centered Workflow
  - Floppy Disks



West Nevada Community College, 1997

# My Origin Story

- Undergrad in Physics ('94 - '96)
  - Windows 3.1
  - MS Word / Excel
  - Mouse Centered Workflow
  - Floppy Disks
- Honours Year (1997): When I Try To Get Serious...

manage documents  
outlines and tables

graphics and artwork

**SAMS**  
**Teach Yourself**


Microsoft®  
**Word 2000**

**in 24**  
**Hours**

Heidi Steele



# ... but then I met this guy...

 BeeWare

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## The Bee Team

The core team behind BeeWare development


So who are the people behind BeeWare? Well, there's a huge group of contributors, but the project is managed by the Bee Team.


### Current team


#### Russell Keith-Magee


Dr Russell Keith-Magee is the founder of the BeeWare project. He joined the Django core team in 2006, and for 5 years, was President of the Django Software Foundation. He has been a member of the CPython core team since May 2024.


Russell is a Principal Software Engineer in the Open Source group at [Anaconda](#) (a BeeWare Gold sponsor).



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Superpower: Bee-nevolent Dictator,  
For Now

# ... who “ruined” my life by introducing me to LaTeX 🤔

```
108 \section{Simulation of Linear Surfaces\label{sec:Linear_sim}}
109
110 Since we desire to simulate ocean surfaces in the spectral domain, our simulation
111 method can be based around one of two representations of the linear, Gaussian
112 process \cite{Rice54}:
113 \begin{equation}
114 \label{eqn:linear_one}
115 \eta(x) = \sum_{n=1}^N a_n \cos(k_n x) + b_n \sin(k_n x),
116 \end{equation}
117
118 or
119 \begin{equation}
120 \label{eqn:linear_two}
121 \eta(x) = \sum_{n=1}^N c_n \cos(k_n x + \phi_n),
122 \end{equation}
123
124 In (\ref{eqn:linear_one}),  $a_n$  and  $b_n$  are independent random,
125 Gaussian variables, with zero mean and variance
126 \[
127 \sigma_{a_n}^2 = \sigma_{b_n}^2 = \Psi(k_n) \Delta k,
128 \]
129 while in (\ref{eqn:linear_two}) the amplitudes  $c_n$  are given by
130 \[
131 c_n = \sqrt{2\Psi(k_n) \Delta k},
132 \]
```

## 2 Simulation of Linear Surfaces

Since we desire to simulate ocean surfaces in the spectral domain, our simulation method can be based around one of two representations of the linear, Gaussian process (Rice 1954):

$$\eta(x) = \sum_{n=1}^N a_n \cos(k_n x) + b_n \sin(k_n x), \quad (1)$$

or

$$\eta(x) = \sum_{n=1}^N c_n \cos(k_n x + \phi_n). \quad (2)$$

In (1),  $a_n$  and  $b_n$  are independent random, Gaussian variables, with zero mean and variance

$$\sigma_n^2 = \Psi(k_n) \Delta k,$$

while in (2) the amplitudes  $c_n$  are given by

$$c_n = \sqrt{2\Psi(k_n) \Delta k},$$

# But seriously... why was exposure to LaTeX significant?

- It introduced me to the idea that a visual element and its representation/implementation can be decoupled (like HTML, Markdown...)

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# But seriously... why was exposure to LaTeX significant?

- It introduced me to the idea that a visual element and its representation/implementation can be decoupled (like HTML, Markdown...)
- Also... LaTeX is cool.



## But Also...

- I ran my LaTeX “distribution” em-TeX using a little GUI called “emTeXGI”.
- Sadly, emTeXGI has been memory-holed; no images of it remain, but it looked something like this...



## But Also...

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- 
- Alt-Tab between GUI and source
  - Tab between “Save”, “Compile”
- 
- I became irate when I couldn’t do this.



# The Interregnum

- Eventually I went to grad school, and intermittently used Vim (oooh, foreshadowing!), but not in a serious way.
- Various jobs required me to use Windows, Visual Studio.NET, and other mousey things.
- This situation persisted for good while, punctuated by my occasional insistence on using LaTeX to make presentations (I'm cured of that), and conference posters (of which I'm still afflicted).
- Then came...



# The Pandemic!

# The Pandemic

- While I had tinkered around with keyboard-based workflows previously, I hadn't seriously put any time into it.
- By the middle of 2020, I found that I was spending a lot more time on my computer (for good or ill), and was itching to do something different.
- A few diversions started to take a more important role:
  - Coding YouTubers
  - Coding YouTubers who use Vim
  - Mechanical Keyboards
- Combining these interests led me to...

# Part II: Minimizing Cognitive Load

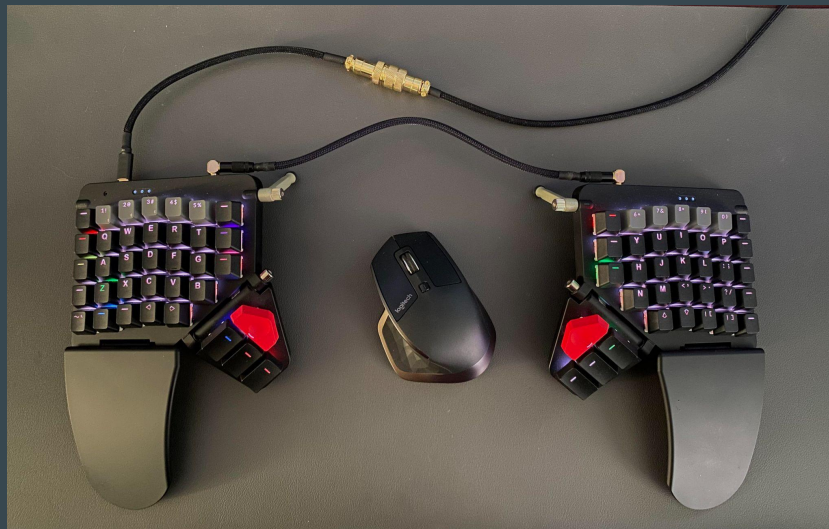
# Minimizing Cognitive Load

- Reducing behaviours and actions which interrupt your current task. People are bad multitaskers. They just are.
- The things I do to streamline my workflow fall into two broad categories:
  - Economy of Movement
  - Economy of Search

# Economy of Movement

- This is where the concept of the Bop-It comes in: you will be more effective if you are not flailing away at your keyboard. Or between the keyboard and mouse.
- Use your mouse when you need to, and your keyboard when you don't
- For just the keyboard, economy of movement can be achieved either...

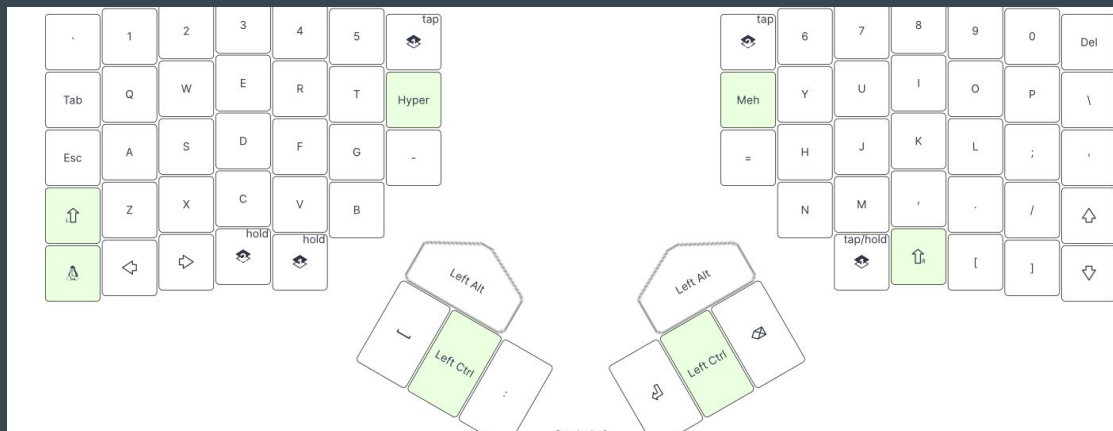
- Hardware (keyboards)



# Economy of Movement

- This is where the concept of the Bop-It comes in: you will be more effective if you are not flailing away at your keyboard. Or between the keyboard and mouse.
- Use your mouse when you need to, and your keyboard when you don't
- For just the keyboard, economy of movement can be achieved either...

- Or Software (key-mappings)



# Keyboards

- I don't get too invested in the notion of and “ergonomic” keyboard. I'm sure it's a thing, but 🙄
- Split keyboards (as on the previous slides) are fine, but a good layout can be just as good.
- My most used keyboard...

# Keyboards

- I don't get too invested in the notion of and “ergonomic” keyboard. I'm sure it's a thing, but 🙄
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# Keyboards

- Orthocolumnar! (keys are in vertical rows, not staggered)
- This is a 40% keyboard (w.r.t. a full-size keyboard's number of keys)
- How do we cram all the functionality we want into such a small size...



# Keyboards

- Orthocolumnar! (keys are in vertical rows, not staggered)
- This is a 40% keyboard (w.r.t. a full-size keyboard's number of keys)
- How do we cram all the functionality we want into such a small size...
- LAYERS!



# Keyboards

- You already use layers: the SHIFT key takes you to the “CAPS and SYMBOLS” layer.
- This keyboard has layer “raise” and “lower” keys either side of the space bar.
- LED lighting of the keys are used as a visual cue



# Keyboards

- The “lower” layer converts the top row to the usual symbols you’d find along the top of a keyboard
- The “< > ⬇ ⬆” keys are Line start/end, Page down/up respectively.
- “hjkl” are left/down/up/right respectively (more foreshadowing!)



# Keyboards

- The “raise” layer converts the top row to the usual numbers.
- Makes an upside-down keypad: QWEASDZXCV → 1-9,0
- “Keypad” is purple, as a visual cue





# Keyboards

- Both layer keys simultaneously activates the “parenthesis” layer
- “RU”, “FJ” and “VM” give the “()”, “[ ]” and “{ }” pairs respectively. Note the symmetry...
- “D” and “K” give “^” and “\$” (IYKYK)



# Hot Keys

- Sometimes you don't have your fancy programmable keyboard with you, what do you do then? Hotkey daemons!
- Sxhkd (<https://github.com/baskerville/sxhkd>), Linux
- Kanata (<https://github.com/jtroo/kanata>), Linux
- Skhd (<https://github.com/asmvik/skhd>), MacOS

```
#      MULTIMEDIA KEYS
#####

#Raises volume
XF86AudioRaiseVolume
    amixer set Master 10%+

#Lowers volume
XF86AudioLowerVolume
    amixer set Master 10%-

#Mute
XF86AudioMute
    amixer 0 -pules set Master 1; toggle
```

# Hot Keys

- Key mapping daemons are generally used to create mappings which are independent of the OS or desktop environment being used
- In the example below, the laptop media keys are being mapped to a particular audio mixer app.

```
#      MULTIMEDIA KEYS
#####

#Raises volume
XF86AudioRaiseVolume
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    amixer -D pulse set Master 1; toggle
```



# Web Browsing

- Navigating to links on a webpage might seem like “search”, but you already have to find the link with your eyes, so it’s just movement.



# Web Browsing

- Navigating to links on a webpage might seem like “search”, but you already have to find the link with your eyes, so it’s just movement.
- Shown below is “Qutebrowser”, “f” for “find” brings up key combinations to select the various links. Note that each of the character pairs have either characters accessible from either hand, or by a comfortable rolling motion of the same hand. No awkward stretches.



# Economy of Search

- Optimizing the process of searching can also be thought of as optimizing navigation: if we're looking for something, we'd rather be able to teleport there rather than walk.
- We can be searching for a particular string in a text file, or a workspace on our desktop, with the aim of going there
- Rather than inspecting a large list/table to find the thing we want (and clicking on it), it is preferable to type a few characters to zero in on what we want.

# Fuzzy Finders

- The notion of “fuzzy finding” can be applied to a range of different contexts:
  - finding the app you want to load
  - finding a file on your file system
  - finding a string in a text file
- The utility of fuzzy finding depends on at least having some idea of what you are looking for, i.e.: part of the name
- There are some instances where a text-based search may be slower than just using your Mark-1 Eyeball to directly find the thing: they will be discussed as we get to them

# FZF (<https://github.com/junegunn/fzf>)

- A fuzzy finder for your command line
- Can search your command history, or for a file on your filesystem (and many things besides).
- CTRL-R and CTRL-T give history and filesystem fuzzy finding respectively

```
366 rm -f ./cspp-sounder-ql-1.4.tar.gz*
377 cd /data/users/geoffc/CSPP_Sounder_QL_dev/git/cspp_sounder_ql-worktrees/legacy
387 echo /data/users/geoffc/CSPP_Sounder_QL_dev
390 cd /data/users/geoffc/CSPP_Sounder_QL_dev/work ; ls -la
391 cd /data/users/geoffc/CSPP_Sounder_QL_dev ; ls -la
392 cd /data/users/geoffc/CSPP_Sounder_QL_dev/sample_data ; ls -la
393 cd /data/users/geoffc/CSPP_Sounder_QL_dev/package_tree/ ; ls -la
394 export CSPP_SOUNDER_QL_HOME=/data/users/geoffc/CSPP_Sounder_QL_dev/package_tree/cspp-so
395 cd /data/users/geoffc/CSPP_Sounder_QL_dev/git/cspp_sounder_ql-worktrees/legacy ; ls -la
396 cd /data/users/geoffc/CSPP_Sounder_QL_dev/tarballs ; ls -la
397 cd /data/users/geoffc/CSPP_Sounder_QL_dev/pkg_test ; ls -la
410 echo $CSPP_SOUNDER_QL_HOME
476 rm -rf cspp-sounder-ql-1.4
477 sh cspp-sounder-ql/cspp-sounder-ql_packaging.sh cspp-sounder-ql 1.4 ../tarballs
479 cd cspp-sounder-ql-1.4
485 ls -la /data/users/geoffc/CSPP_Sounder_QL_dev/tarballs/cspp-sounder-ql-1.4
486 nvim scripts/sounder_image.py
495 git commit -a -m"Reversed the order of the colortable for Lifted Index, and reinstated
498 sh /data/users/geoffc/CSPP_Sounder_QL_dev/setup/tmux_cspp_sounder_ql.sh
499 nvim scripts/sounder_image scripts/sounder_packages/heap.py
98/303 +S
sounder
```

```
> .py$
77866/1293631 (0)
miniconda3/lib/python3.1/site-packages/pygments/lexers/d.py
miniconda3/lib/python3.1/site-packages/pygments/lexers/j.py
miniconda3/lib/python3.1/site-packages/pygments/lexers/q.py
miniconda3/lib/python3.1/site-packages/pygments/lexers/r.py
miniconda3/lib/python3.10/site-packages/pygments/lexers/d.py
miniconda3/lib/python3.10/site-packages/pygments/lexers/j.py
miniconda3/lib/python3.10/site-packages/pygments/lexers/q.py
miniconda3/lib/python3.10/site-packages/pygments/lexers/r.py
miniconda3/lib/python3.1.c~/site-packages/pygments/lexers/d.py
miniconda3/lib/python3.1.c~/site-packages/pygments/lexers/j.py
miniconda3/lib/python3.1.c~/site-packages/pygments/lexers/r.py
miniconda3/lib/python3.1.c~/site-packages/pygments/lexers/q.py
miniconda3/pkgs/pygments-2.19.1-pyhd8ed1ab_0/site-packages/pygments/lexers/d.py
miniconda3/pkgs/pygments-2.19.1-pyhd8ed1ab_0/site-packages/pygments/lexers/j.py
miniconda3/pkgs/pygments-2.19.1-pyhd8ed1ab_0/site-packages/pygments/lexers/q.py
miniconda3/pkgs/pygments-2.19.1-pyhd8ed1ab_0/site-packages/pygments/lexers/r.py
.local/share/oldshit/nvim/mason/packages/ruff-lsp/venv/lib/python3.10/site-packages/catt
.local/share/oldshit/nvim/mason/packages/ruff-lsp/venv/lib64/python3.10/site-packages/ca
miniconda3/lib/python3.1/io.py
miniconda3/lib/python3.1/os.py
```

# television (<https://github.com/alexpasmantier/television>)

- “A very fast, portable and hackable fuzzy finder for the terminal.”
- Can search filesystem, code, processes, git repos, env vars, docker containers...

```
version:      0.5.0
target triple: x86_64-unknown-linux-gnu
build:        1.82.0
current directory: /home/geoffc
current channel: Files
current mode:  Channel
```

```
Results navigation:  Up / Down
Preview navigation:  Ctrl-u / Ctrl-d
Select entry:       Enter
Copy entry to clipboard: Ctrl-y
Send results to:     Ctrl-s
Toggle Remote control: Ctrl-r
Quit:               Esc
```



## Results

```
SSEC/git/geocat/algomodgen.py
tmp/vm_shared/qtile/config.py
tmp/test_proj/prof_black.py
tmp/test_proj/prof_yapl.py
tmp/test_proj/prof_alt.py
tmp/Assignment_pt2c.py
tmp/test_proj/prof.py
tmp/test_proj/mapp.py
tmp/Assignment_pt1.py
tmp/py_modules.py
tmp/prof_black.py
tmp/prof_yapl.py
> tmp/mapp.py
```

## tmp/mapp.py

## Preview

```
1  import sys
2
3  import cartopy.crs as ccrs
4  import matplotlib
5  from matplotlib import pyplot as plt
6  from matplotlib import cm as mpl_cm
7  from matplotlib import colors as mpl_colors
8  import numpy as np
9  import numpy.ma as ma
10 import pandas as pd
11 # import cartopy.feature as cfeature
12 # from cartopy.util import add_cyclic_point
13
```

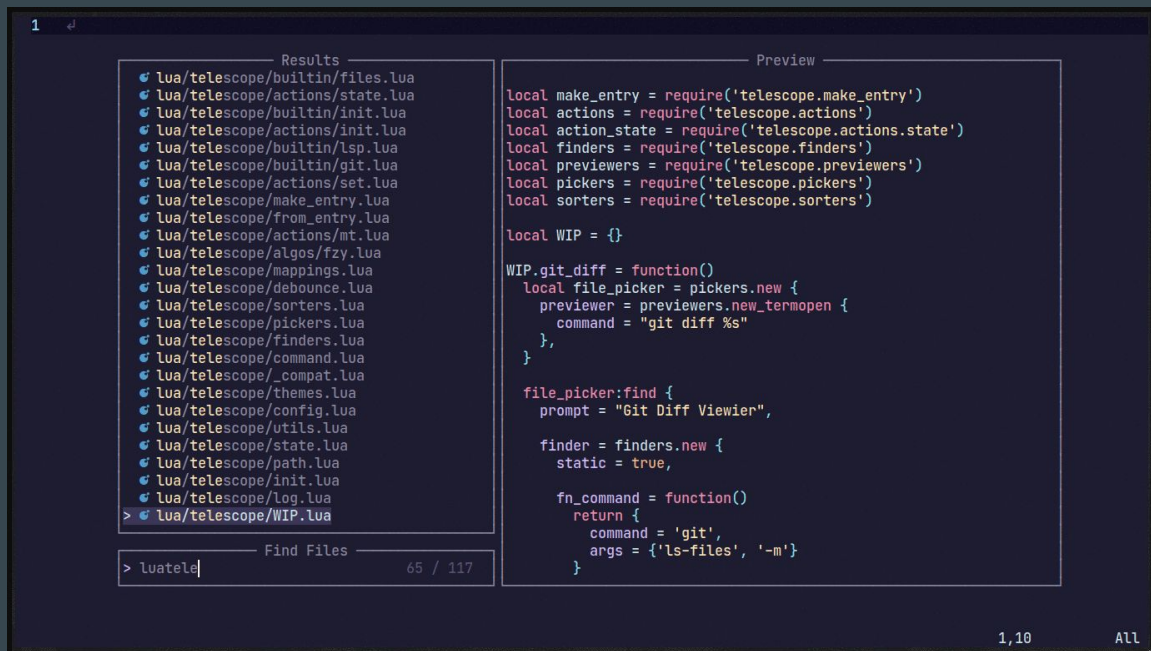
## Pattern

```
> py$
```

```
1 / 242839
```

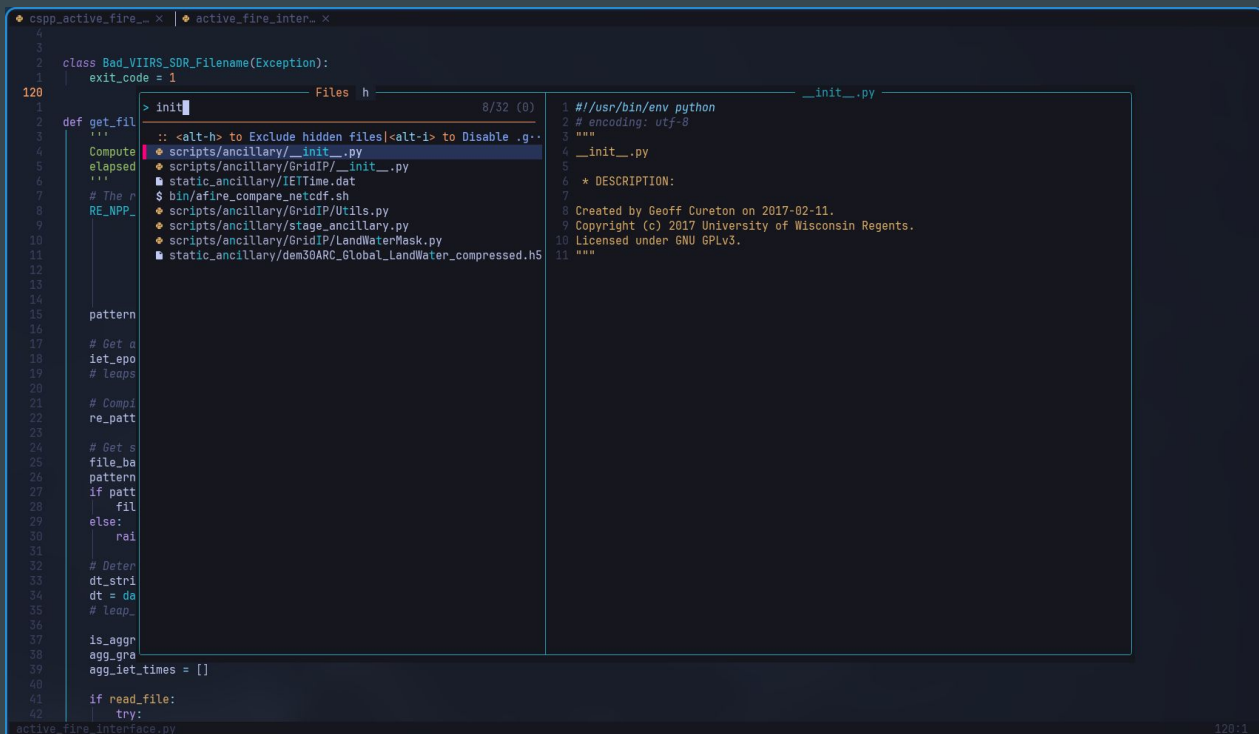
# Telescope (<https://github.com/nvim-telescope/telescope.nvim>)

- The first general-purpose fuzzy finder plugin for NeoVim.
- You could add your own finders (say, for your Markdown notes)



# LazyVim (<https://www.lazyvim.org/>)

- A NeoVim “distribution” which provides a range of different search modes...



The screenshot shows a NeoVim editor interface with a dark theme. At the top, there are two tabs: 'cspp\_active\_fire...' and 'active\_fire\_inter...'. Below the tabs, a file explorer window is open, showing a directory structure with files like 'scripts/ancillary/\_\_init\_\_.py', 'scripts/ancillary/GridIP/\_\_init\_\_.py', 'static/ancillary/IETTime.dat', 'bin/afire\_compare\_netcdf.sh', 'scripts/ancillary/GridIP/Utils.py', 'scripts/ancillary/stage\_ancillary.py', 'scripts/ancillary/GridIP/LandWaterMask.py', and 'static/ancillary/dem30ARC\_Global\_LandWater\_compressed.h5'. The main editor area is split into two panes. The left pane shows a Python file 'active\_fire\_interface.py' with a function 'def get\_file' and its associated docstring. The right pane shows a Python file '\_\_init\_\_.py' with a docstring and a 'DESCRIPTION' section. The status bar at the bottom indicates 'active\_fire\_interface.py' and '120:1'.

```
cspp_active_fire... x | active_fire_inter... x
4
3
2 class Bad_VIIRS_SDR_Filename(Exception):
1 | exit_code = 1
120
> init | 8/32 (0)
:: <alt-h> to Exclude hidden files|<alt-i> to Disable .g..
Compute | * scripts/ancillary/__init__.py
elapsed | * scripts/ancillary/GridIP/__init__.py
* static/ancillary/IETTime.dat
$ bin/afire_compare_netcdf.sh
# The r
RE_NPP_ | * scripts/ancillary/GridIP/Utils.py
* scripts/ancillary/stage_ancillary.py
* scripts/ancillary/GridIP/LandWaterMask.py
* static/ancillary/dem30ARC_Global_LandWater_compressed.h5
13
14
15 pattern
16
17 # Get a
18 iet epo
19 # leaps
20
21 # Compi
22 re_patt
23
24 # Get s
25 file ba
26 pattern
27 if patt
28 | fil
29 else:
30 | rei
31
32 # Deter
33 dt_stri
34 dt = da
35 # leap_
36
37 is_aggr
38 agg_gre
39 agg_iet_times = []
40
41 if read_file:
42 | try:
active_fire_interface.py
120:1
```

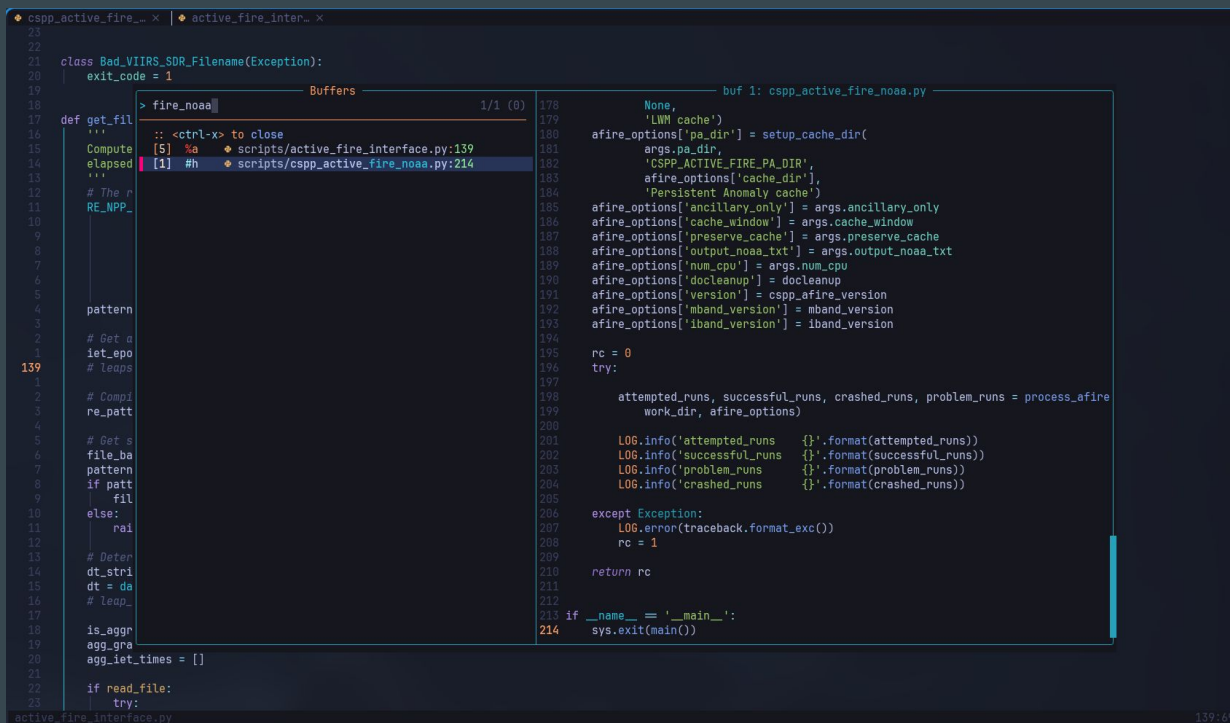


# LazyVim (<https://www.lazyvim.org/>)

- Files

# LazyVim (<https://www.lazyvim.org/>)

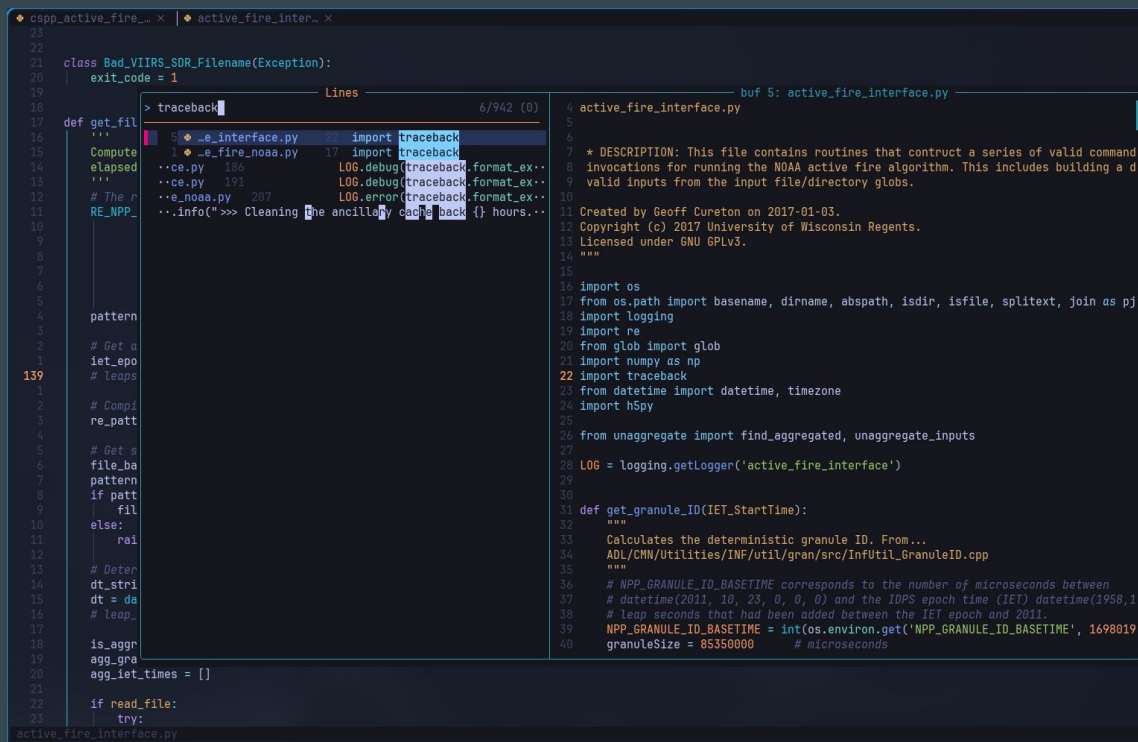
- Buffers



```
cspp_active_fire_noaa.py x | active_fire_interface.py x
23
22
21 class Bad_VIIRS_SDR_Filename(Exception):
20     exit_code = 1
19
18 > fire_noaa | Buffers 1/1 (0)
17 def get_fil
16     '''
15     Compute [5] %a ♦ scripts/active_fire_interface.py:139
14     elapsed [1] #h ♦ scripts/cspp_active_fire_noaa.py:214
13     '''
12     # The r
11     RE_NPP_
10
9
8
7
6
5
4 pattern
3
2 # Get a
1 iet_eto
139 # leaps
1
2 # Comp1
3 re_patt
4
5 # Get s
6 file_ba
7 pattern
8 if patt
9 fil
10 else:
11     rai
12
13 # Deter
14 dt_stri
15 dt = da
16 # leap_
17
18 is_aggr
19 agg_gro
20 agg_iet_times = []
21
22 if read_file:
23     try:
178 None,
179 'LNM cache')
180 afire_options['pa_dir'] = setup_cache_dir(
181     args.pa_dir,
182     'CSPP_ACTIVE_FIRE_PA_DIR',
183     afire_options['cache_dir'],
184     'Persistent Anomaly cache')
185 afire_options['ancillary_only'] = args.ancillary_only
186 afire_options['cache_window'] = args.cache_window
187 afire_options['preserve_cache'] = args.preserve_cache
188 afire_options['output_noaa_txt'] = args.output_noaa_txt
189 afire_options['num_cpu'] = args.num_cpu
190 afire_options['docleanup'] = docleanup
191 afire_options['version'] = cspp_afire_version
192 afire_options['mband_version'] = mband_version
193 afire_options['iband_version'] = iband_version
194
195 rc = 0
196 try:
197
198     attempted_runs, successful_runs, crashed_runs, problem_runs = process_afire
199     work_dir, afire_options)
200
201     LOG.info('attempted_runs {}').format(attempted_runs)
202     LOG.info('successful_runs {}').format(successful_runs)
203     LOG.info('problem_runs {}').format(problem_runs)
204     LOG.info('crashed_runs {}').format(crashed_runs)
205
206 except Exception:
207     LOG.error(traceback.format_exc())
208     rc = 1
209
210 return rc
211
212
213 if __name__ == '__main__':
214     sys.exit(main())
```

# LazyVim (<https://www.lazyvim.org/>)

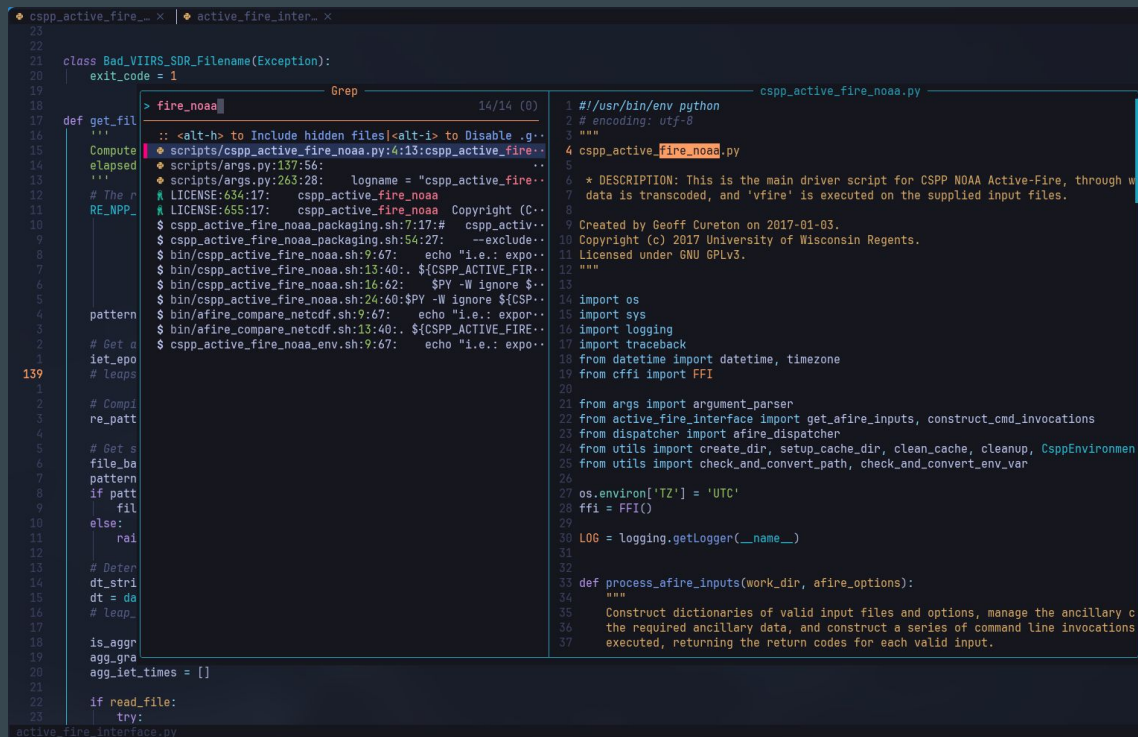
- Search within current buffer



```
23
22
21 class Bad_VIIRS_SDR_Filename(Exception):
20     exit_code = 1
19
18
17 > traceback 6/942 (0)
16
15 5 ..e_interface.py 17 import traceback
14 Compute 1 ..e_fire_noaa.py 17 import traceback
13 elapsed ..ce.py 186 LOG.debug(traceback.format_ex...
12 ..ce.py 191 LOG.debug(traceback.format_ex...
11 # The r ..e_noaa.py 207 LOG.error(traceback.format_ex...
10 RE_NPP ..info(">>> Cleaning the ancillary cache back {} hours...
9
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4 pattern
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2 # Get s
1 iet_eto
139 # leaps
1
2 # Compli
3 re_patt
4
5 # Get s
6 file_ba
7 pattern
8 if patt
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18 is_aggr
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22 if read_file:
23     try:
24         active_fire_interface.py
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# LazyVim (<https://www.lazyvim.org/>)

- Grep files in CWD (with ripgrep!)



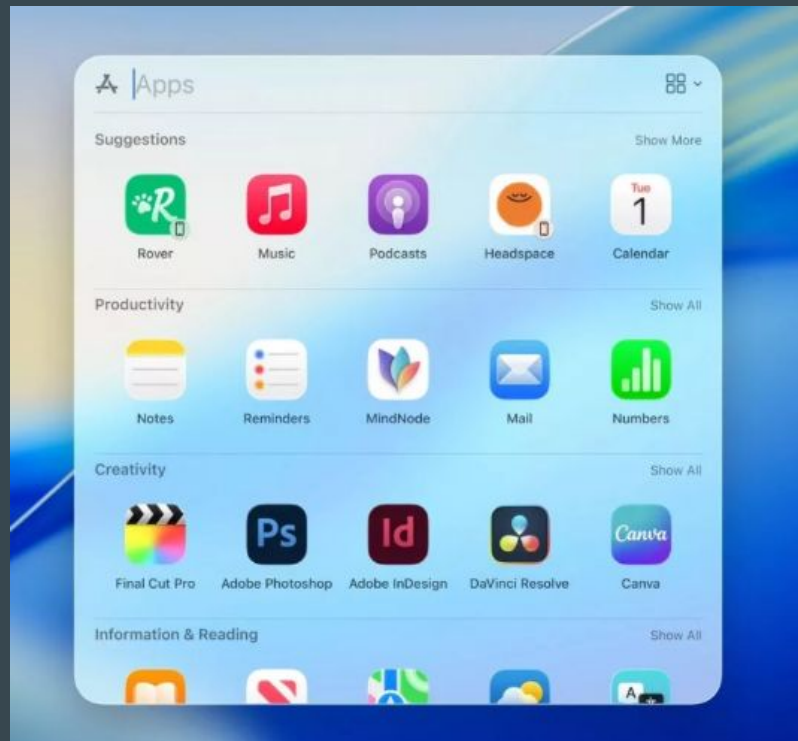
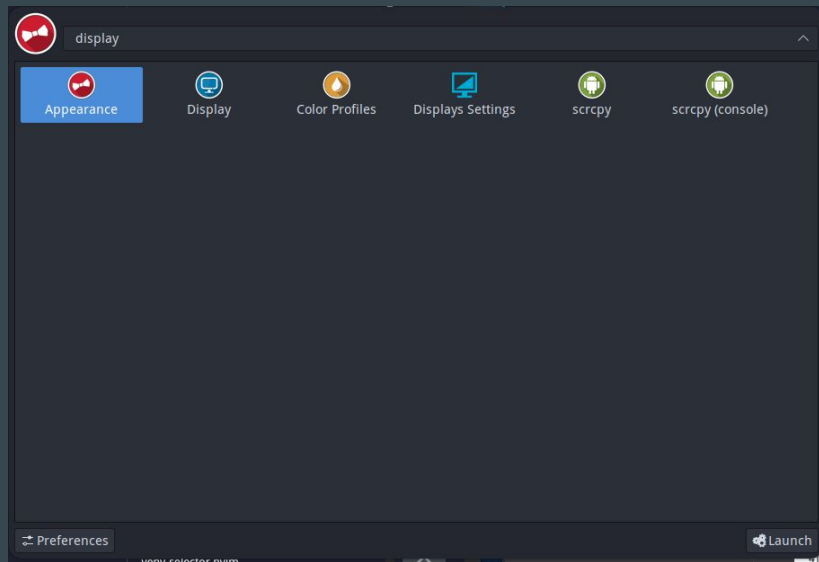
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cspp_active_fire... x | active_fire_inter... x
23
22
21 class Bad_VIIRS_SDR_Filename(Exception):
20     exit_code = 1
19
18 > fire_noaa | 14/14 (0)
17 def get_fil
16     """
15     :: <alt-h> to Include hidden files|<alt-i> to Disable .g..
14     Compute
13     * scripts/cspp_active_fire_noaa.py:4:13:cspp_active_fire..
12     * scripts/args.py:137:56:
11     * scripts/args.py:263:28: logname = "cspp_active_fire..
10     # The r
9     # LICENSE:634:17: cspp_active_fire_noaa Copyright (C..
8     # LICENSE:655:17: cspp_active_fire_noaa Copyright (C..
7     $ cspp_active_fire_noaa_packaging.sh:7:17:# cspp_activ..
6     $ cspp_active_fire_noaa_packaging.sh:54:27: --exclude..
5     $ bin/cspp_active_fire_noaa.sh:9:67: echo "i.e.: expo..
4     $ bin/cspp_active_fire_noaa.sh:13:40:. $(CSPP_ACTIVE_FIR..
3     $ bin/cspp_active_fire_noaa.sh:16:62: $PY -W ignore $-..
2     $ bin/cspp_active_fire_noaa.sh:24:60:$PY -W ignore $(CSPP..
1     $ bin/afire_compare_netcdf.sh:9:67: echo "i.e.: expor..
0     $ bin/afire_compare_netcdf.sh:13:40:. $(CSPP_ACTIVE_FIR..
-1     $ cspp_active_fire_noaa_env.sh:9:67: echo "i.e.: expo..
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```

# Harpoon (<https://github.com/ThePrimeagen/harpoon>)

- When working in a large codebase, it's common to need to jump back and forth between one of a few points (say, a function usage and its definition)
- Harpoon is predicated on the idea that people cannot meaningfully use more than several points of context at a time.
- Each of those points can be made easily accessible using a hotkey: <something>-1, <something>-2 etc...
- Using these limited number of mappings, one can rapidly navigate code relevant to a task. As the task changes, so do the mappings.
- This workflow is an alternative to trying to have all of your context on screen at once... bigger monitors!, more monitors!

# Application Pickers

- Beats navigating down a menu tree!



# Miscellaneous

- There are some parts of my workflow that don't fit neatly a particular category.
- I'll just go through them and discuss why I find them useful

# Vim / NeoVim / Emacs + TMUX

- A text editor with useful keybinds to navigate between the various elements (buffers, windows, dialogs, ...)
- Many editors outside of the main TUI based ones have plugins to replicate their behavior (VS Code - VIM keybinds)
- A terminal-based editor can be run “locally” on a remote server (inside a Screen/TMUX/Zellij session), you can log out, go home, and pick up where you left off.



Neo-tree

~/SSEC/CSPP/CSPP-ActiveFire/git/cspp\_

\_\_pycache\_\_

bin

scripts

ancillary

active\_fire\_interface.py

afire\_compare\_netcdf.py

args.py

cspp\_active\_fire\_noaa.py

dispatcher.py

log\_common.py

unaggregate.py

utils.py

static\_ancillary

vendor

LICENSE

README.md

VERSION

\$ cspp\_active\_fire\_noaa\_env.sh

\$ cspp\_active\_fire\_noaa\_packaging.sh

\$ cspp\_active\_fire\_noaa\_runtime.sh

\$ tag\_version.sh

(3 hidden items)

cspp\_active\_fire\_... | active\_fire\_inter... x

return attempted\_run

Cmdline

> %s/main\ /mostly\ main/s

def main():

"""

The mostly mainmethod, which checks environment vars and collects all of

Returns 0 on success

"""

# Read in the command line options

args: Unknown, work\_dir: Unknown, docleanup: Unknown, cspp\_afire\_version:

dt\_now: datetime = datetime.now(tz=timezone.utc)

header\_width = 78

header\_str\_list: list[Unknown | str] = [

'#' \* header\_width,

'Community Satellite Processing Package',

'VIIRS Active Fires',

'',

'CSPP Active Fires: Version {}'.format(cspp\_afire\_version),

'M-band: {}'.format(mband\_version) if not args.i\_band else 'I-band: {'

# 'Build date: {}'.format(dt\_ts),

'Current date: {}'.format(dt\_now),

'#' \* header\_width,

]

format\_str: Literal["#{:78s}#\n"] = '#{:' + str(object=header\_width) + 's}#

format\_str: LiteralString = format\_str \* len(header\_str\_list)

LOG.info(msg=format\_str.format(\*(header\_str\_list)))

# Check various paths and environment variables that are "must haves".

try:

\_: Unknown, afire\_home: Unknown = check\_and\_convert\_env\_var(varname='

\_: Unknown, afire\_ancil\_path: Unknown = check\_and\_convert\_env\_var(var

\_: Unknown, afire\_static\_ancil\_path: Unknown = check\_and\_convert\_env\_

\_: Unknown = check\_and\_convert\_path(key=None, a\_path=os.path.join(afi

check\_write=False)

\_: Unknown = check\_and\_convert\_path(key=None, a\_path=work\_dir, check\_

except CsppEnvironment as e:

LOG.error(msg=e.value)

LOG.error(msg='Installation error, Make sure all software components

return 2

afire\_options: dict[Unknown, Unknown] = {}

afire\_options['inputs'] = args.inputs

afire\_options['afire\_home'] = os.path.abspath(path=afire\_home)

afire\_options['i\_band'] = args.i\_band

afire\_options['work\_dir'] = os.path.abspath(path=args.work\_dir)

afire\_options['ancil\_dir'] = afire\_ancil\_path

afire\_options['static\_ancil\_dir'] = afire\_static\_ancil\_path

afire\_options['cache\_dir'] = setup\_cache\_dir(

return attempted\_runs, successful\_runs, crashed\_runs, problem\_runs

def main():

"""

The mostly mainmethod, which checks environment vars and collects all of

Returns 0 on success

"""

# Read in the command line options

args: Unknown, work\_dir: Unknown, docleanup: Unknown, cspp\_afire\_version

dt\_now: datetime = datetime.now(tz=timezone.utc)

header\_width = 78

header\_str\_list: list[Unknown | str] = [

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'Community Satellite Processing Package',

'VIIRS Active Fires',

'',

'CSPP Active Fires: Version {}'.format(cspp\_afire\_version),

'M-band: {}'.format(mband\_version) if not args.i\_band else 'I-band:

# 'Build date: {}'.format(dt\_ts),

'Current date: {}'.format(dt\_now),

'#' \* header\_width,

]

cspp\_active\_fire\_noaa.py

141:1

'''

Read the IETTime.dat file containing the leap seconds since 1972, and sa

'''

months = ['JAN', 'FEB', 'MAR', 'APR', 'MAY', 'JUN', 'JUL', 'AUG', 'SEP',

month\_enum = {item: idx for idx, item in enumerate(months, start=1)}

leapsec\_filename = pjoin(leapsecond\_dir, 'IETTime.dat')

try:

leapsec\_file = open(leapsec\_filename, "r") # Open template file for

except IOError as err:

LOG.error("{} , aborting.".format(err))

leapsec\_dt\_list = []

for line in leapsec\_file.readlines():

line = line.replace("\n", "")

fields = line.split(" ")

fields = list(filter(lambda x: x != '', fields))

year = int(fields[0])

month = month\_enum[fields[1]]

day = int(fields[2])

leap\_secs = int(float(fields[6]))

leap\_dt = datetime(year, month, day)

leapsec\_dt\_list.append({'dt': leap\_dt, 'leapsecs': leap\_secs})

leapsec\_file.close()

return leapsec\_dt\_list

<P-ActiveFire/git/cspp\_active\_fire\_noaa

COMMAND

master

<afire\_noaa.py

> f main f main

: < @ 14

77% 165:1

@ 13:28

active\_fire\_interface.py

87:14

```

Neo-tree
├─ /data/users/geoffc/CSPP_Sounder_QL_de
│   └─ bin
│       └─ scripts
│           └─ sounder_packages
│               └─ args.py
│               └─ exceptions.py
│               └─ log_common.py
│               └─ ql_common.py
│               └─ sounder_image.py
│               └─ sounder_image_data.py
│               └─ sounder_profile.py
│               └─ sounder_skewt.py
│               └─ sounder_skewt_data.py
│               └─ sounder_slice.py
│               └─ sounder_slice_data.py
│               └─ thermo.py
│               └─ utils.py
│                   (1 hidden item)
│   └─ vendor
│       └─ LICENSE
│       └─ README.md
│       └─ VERSION
│       └─ $ cspp-sounder-ql_packaging.sh
│       └─ $ cspp-sounder-ql_unpack_check.sh
│       └─ $ cspp_sounder_ql_env.sh
│       └─ $ cspp_sounder_ql_runtime.sh
│       └─ ruff.toml
│       └─ $ tag_version.sh
│       (4 hidden items)

```

```

sounder_image.py ◊ 4 ▲ 1 x
25
24 Minimum commandline:
23
22 | python sounder_image.py INPUTFILE DATATYPE
21
20 where...
19
18 INPUTFILES: The fully qualified path to the input files. May be a
17 file glob.
16
15 DATATYPE: One of 'iapp','mirs', 'hsrtv', 'nucaps' OR 'heap'.
14
13
12 Created by Geoff Cureton <geoff.cureton@ssec.wisc.edu> on 2014-05-10.
11 Copyright 2025 University of Wisconsin Regents.
10 Licensed under GNU GPLv3.
9 """
8
7 import os
6 import sys
5 import logging
4
3 from args import argument_parser_image
2
1 import sounder_image_data
49 from ql_common import granuleFiles
1 from ql_common import set_plot_styles
2
3 import sounder_packages
4
5 # every module should have a LOG object
6 LOG = logging.getLogger(__file__)
7
8
9 def main():
10     """
11     The main method.
12     """
13
14     # Read in the command line options
15     args, work_dir = argument_parser_image()
16
17     input_files = args.inputs
18     datatype = args.datatype
19     dataset = args.dataset
20     pressure = args.pressure
21     quality_flag = args.use_quality_flag
22     lat_0 = args.lat_0
23     lon_0 = args.lon_0
24     bounding_lat = args.bounding_lat
25     extent = args.extent
26     plot_type = args.plot_type

```

```

8 #!/usr/bin/env python
7 # encoding: utf-8
6 """
5 thermo.py
4
3 Various thermodynamic relationship for ice and water.
2
1 Created by Geoff Cureton <geoff.cureton@ssec.wisc.edu> on 2009-04-04.
9 Copyright 2009-2025 University of Wisconsin Regents. All rights reserved.
2
3 This program is free software: you can redistribute it and/or modify
4 it under the terms of the GNU General Public License as published by
5 the Free Software Foundation, either version 3 of the License, or
6 (at your option) any later version.
7
8 This program is distributed in the hope that it will be useful,
9 but WITHOUT ANY WARRANTY; without even the implied warranty of
10 MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
11 GNU General Public License for more details.
12
13 You should have received a copy of the GNU General Public License
14 along with this program. If not, see <http://www.gnu.org/licenses/>.
15 """
16 # from scipy import log10
17 from numpy import log10
18 from numpy import exp, log
19 from numpy import min, minimum, where
20
21 # -----
22 # Here we go. A set of functions that I use from time to time to calculate
23 # the basic stuff that I'm sick of doing over and over! I'm going to
24 # endeavour to include references and global constants to make it all nice
25 # and legible.
26 # -----
27
28 Rs_da = 287.05 # Specific gas const for dry air, J kg-1 K-1
29 Rs_v = 461.51 # Specific gas const for water vapour, J kg-1 K-1
30 Cp_da = 1004.6 # Specific heat at constant pressure for dry air
31 Cv_da = 719.0 # Specific heat at constant volume for dry air
32 Cp_v = 1870.0 # Specific heat at constant pressure for water vapour
33 Cv_v = 1410.0 # Specific heat at constant volume for water vapour
34 Cp_lw = 4218 # Specific heat at constant pressure for liquid water
35 Epsilon = 0.622 # Epsilon=Rs_da/Rs_v; The ratio of the gas constants
36 degCtoK = 273.15 # Temperature offset between K and C (deg C)
37 rho_w = 1000.0 # Liquid Water density kg m-3
38 grav = 9.81 # Gravity, m s-2
39 Lv = 2.5e6 # Latent Heat of vaporisation
40 boltzmann = 5.67e-8 # Stefan-Boltzmann constant
41 mv = 18.0153 # Mean molar mass of water vapor(g/mol)
42
43

```

```

<v/git/cspp_sounder_ql-worktrees/legacy
leo

```

```

NORMAL legacy < ◊ scripts/sounder_image.py ^Wh < @ 23 25% 49:9 @ 19:35
0 Home 1 Root 2 package 3:Repo 4 Work- 5 pkg_test 6 python 7 SampleData

```

```

thermo.py 9:18
SampleData 2026-01-08 19:35:06

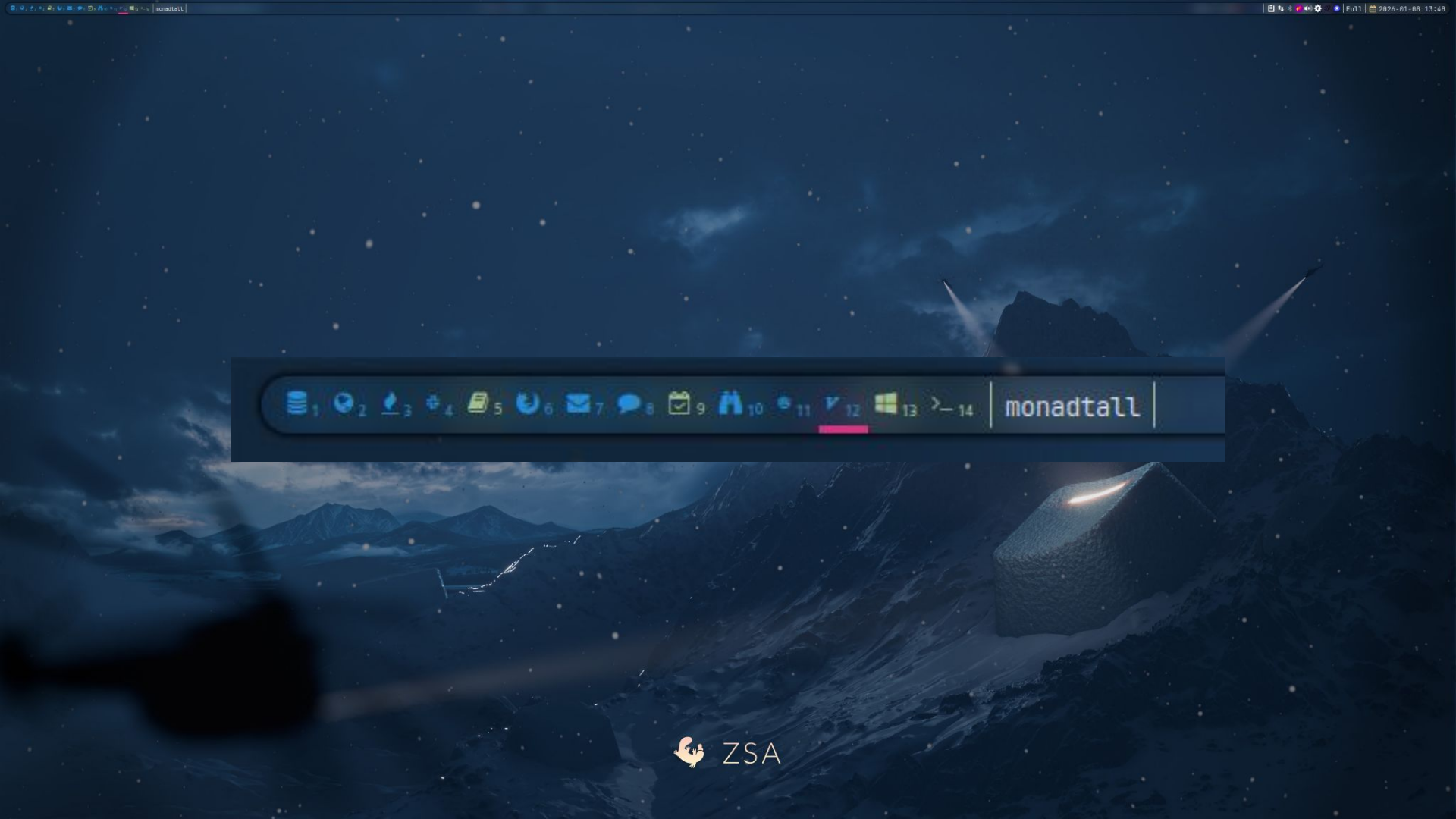
```

# Tiling Window Managers

- Outside of my text editor (NeoVim), I try to manage my various desktop tasks in the same way as my editor: using the keyboard.
- The long-standing mode for app management is app-per-window, so how do I manage my windows?
- My preferred method is to use a tiling window manager, which manages where and how windows are drawn on the screen, so that the windows don't overlap.
- This allows the user to efficiently move windows around using screen, and between virtual desktops, using the keyboard.
- My preferred TWM is Qtile, written in python (<https://pawamoy.github.io/qtile/>)







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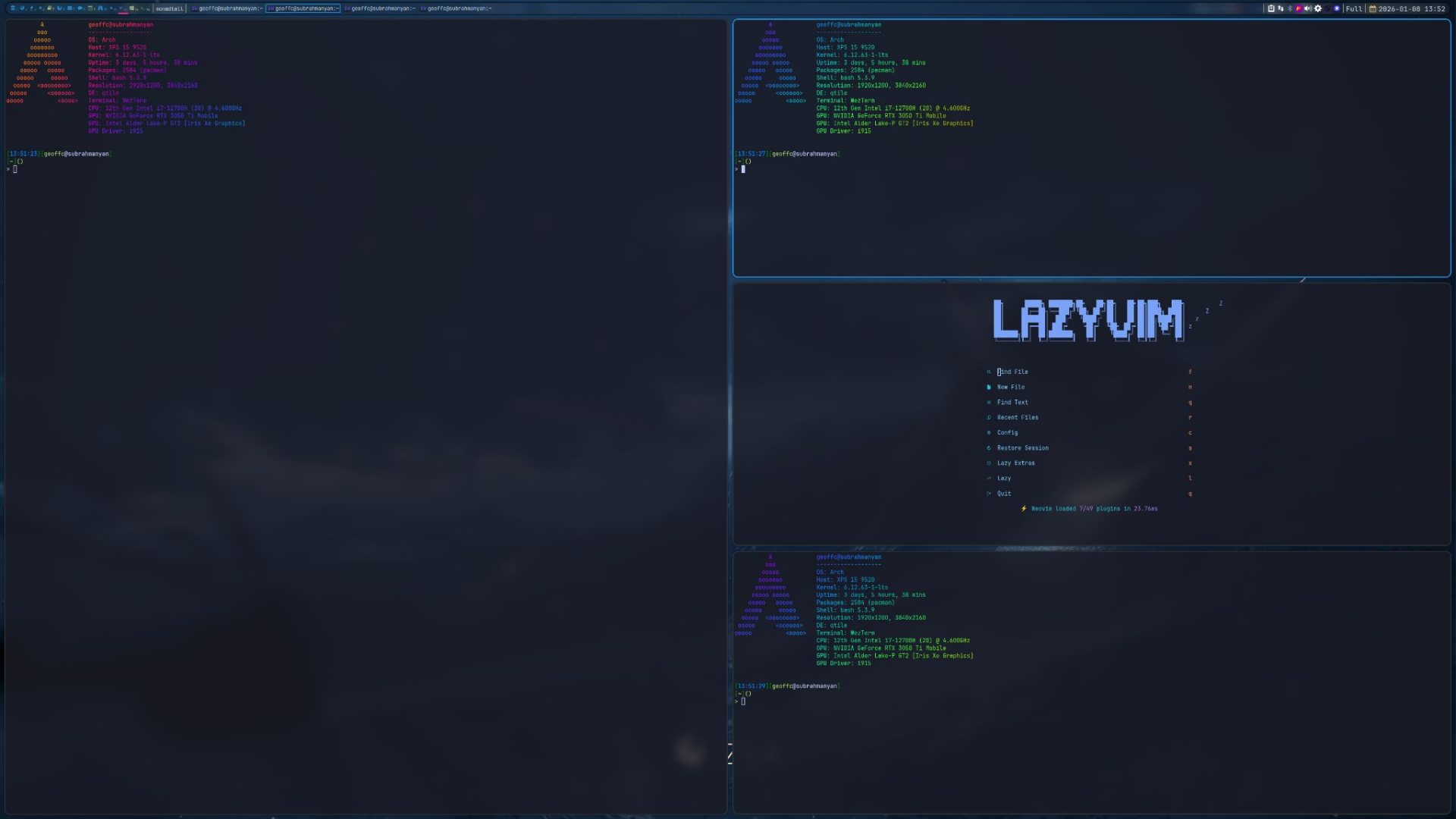
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monadtall









```

NORMAL | main | • visAiki_notes > • Computer_Stuff/~/Rust/Building_statically_linked_binaries.

```

**Thank you!**