

Contributing to Madagascar



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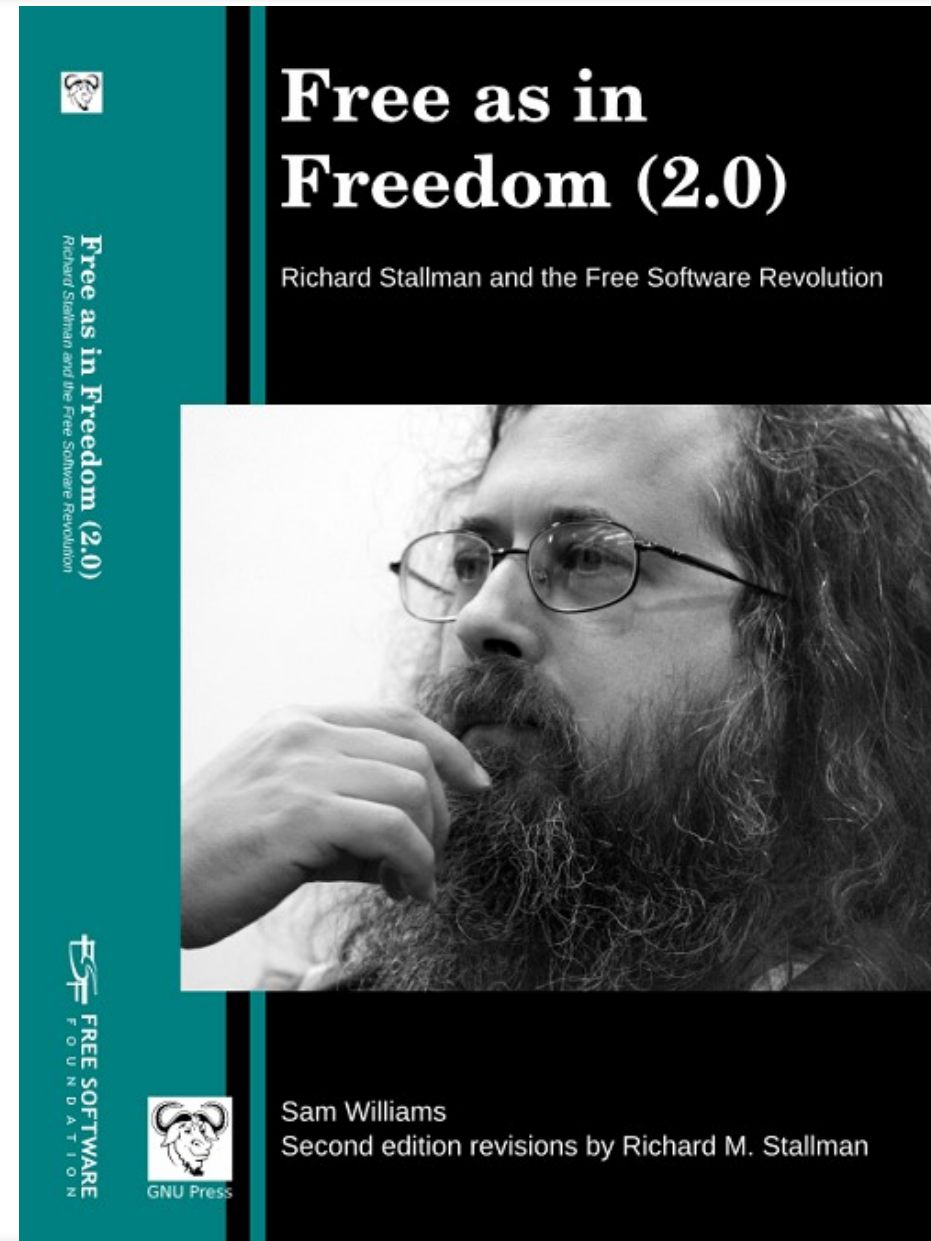
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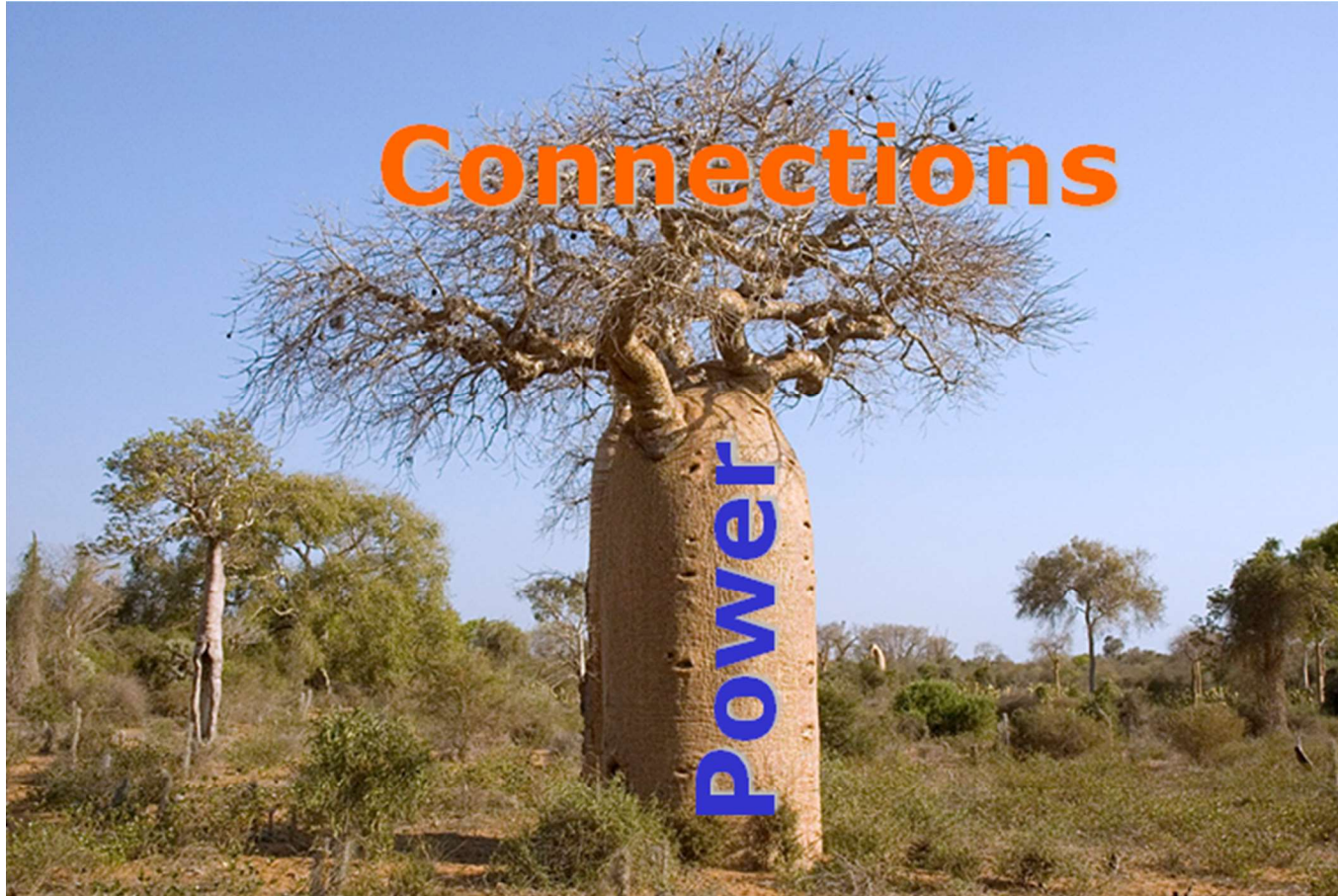
RICHARD STALLMAN, “FOUR FREEDOMS” Motivations

RMS means “RMS Means Stallman”

1. The **freedom** to **run** the program as you wish, for any purpose (*freedom 0*).
2. The **freedom** to **study** how the program works, and **change** it so it does your computing as you wish (*freedom 1*). Access to the source code is a precondition for this.
3. The **freedom** to **redistribute** copies so you can help your neighbor (*freedom 2*).
4. The **freedom** to **distribute** copies of your modified versions to others (*freedom 3*). By doing this you can give the whole community a chance to benefit from **your changes**. Access to the source code is a precondition for this.



Software: power and connections



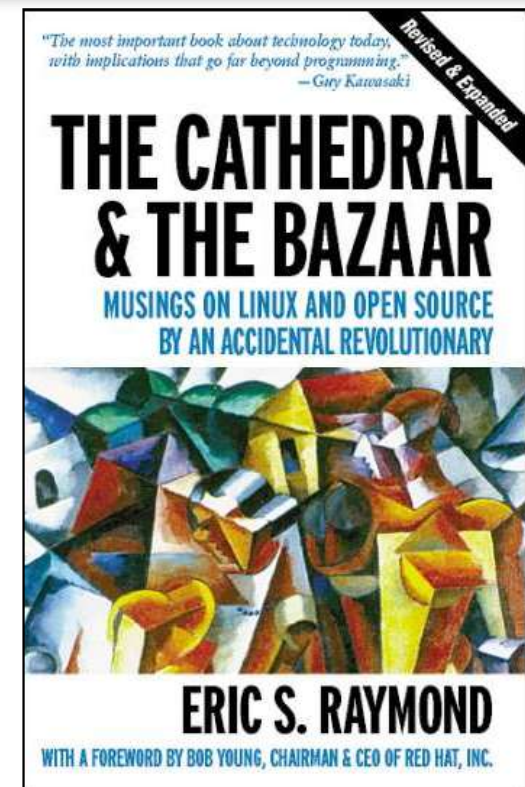
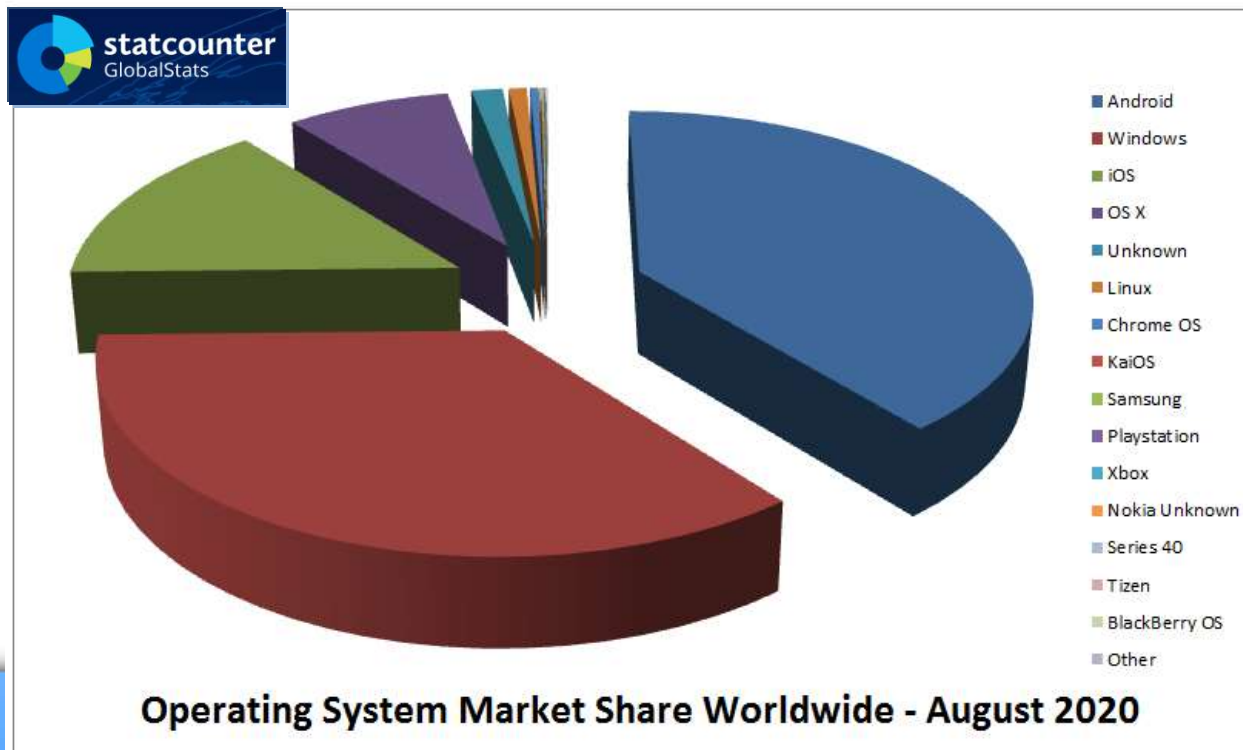
“Instead of computational reproducibility being the responsibility of an individual author, it should become the responsibility of open-source scientific-software communities”



Software: power and connections

“Given a large enough beta-tester and co-developer base, almost every problem will be characterized quickly and the fix obvious to someone.”

“Release Early, Release Often.”



“Given enough eyeballs, all bugs are shallow.”

Linus Torvalds

Madagascar contributors

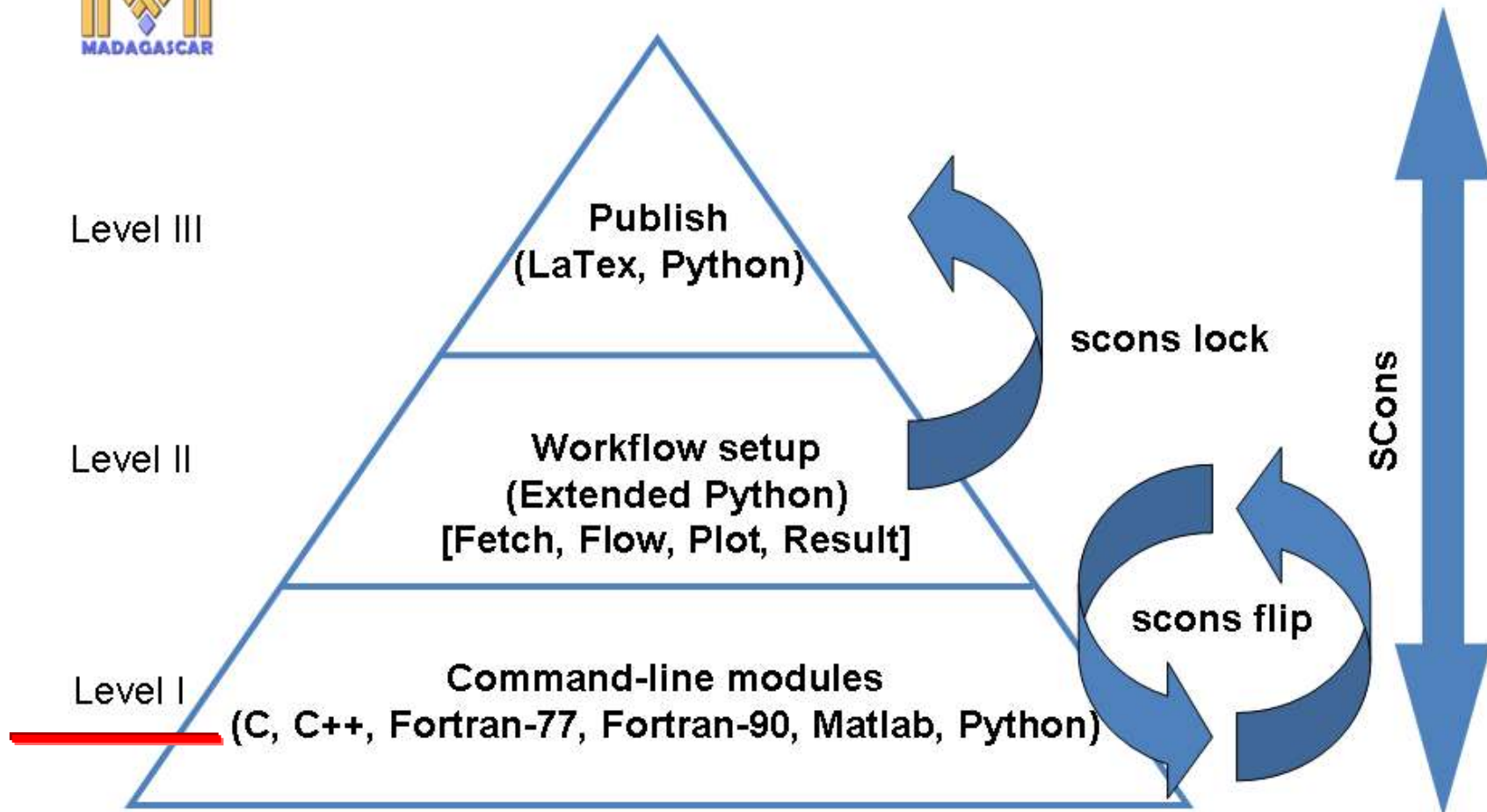


Courtesy of Sergey Fomel (School, Shanghai, 2017)

**Locations of contributors
(2006-2017)**



Madagascar software architecture



Fomel, S, Sava, P, Vlad, I, Liu, Y, and Bashkardin, V 2013. Madagascar: open-source software project for multidimensional data analysis and reproducible computational experiments. Journal of Open Research Software 1(1): e8, DOI: <http://dx.doi.org/10.5334/jors.ag>

Developing programs and testing

Why?

Some tasks are not (easily) doable with available programs; some programs may not exist at all.

How?

1. Read through the slices from the previous schools.
2. Search related programs by using “sfdoc -k <keyword>”
3. Understand core API, e.g., a full reference of the C API:
http://www.ahay.org/RSF/book/rsf/manual/manual_html/
4. Compile and test your programs in examples.

SCons for Program Compilation

```
env=Environment()  
env.Program("program", "file.c")
```

Testing in SConstruct:

```
from rsf.proj import *  
  
.....  
exe = Program('file.c')  
Flow('output','input %s' % exe[0],  
     './${SOURCES[1]}')  
  
.....  
End()
```

Do not waste time reinventing things!



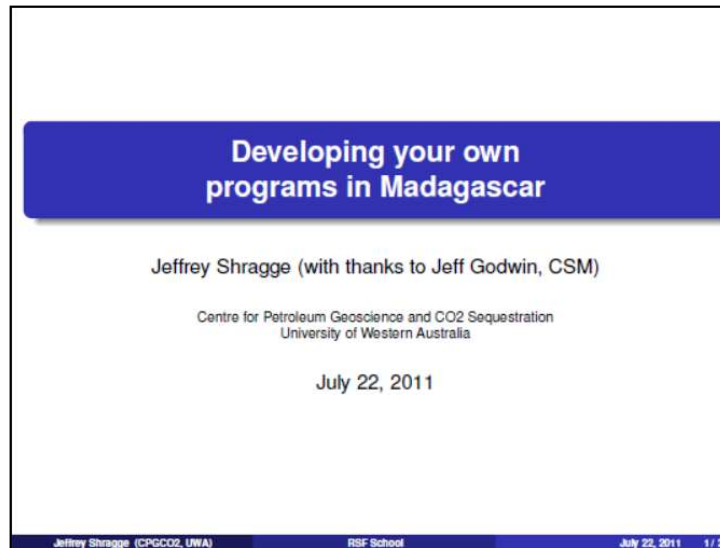
Programming in Madagascar

Jeff Godwin*

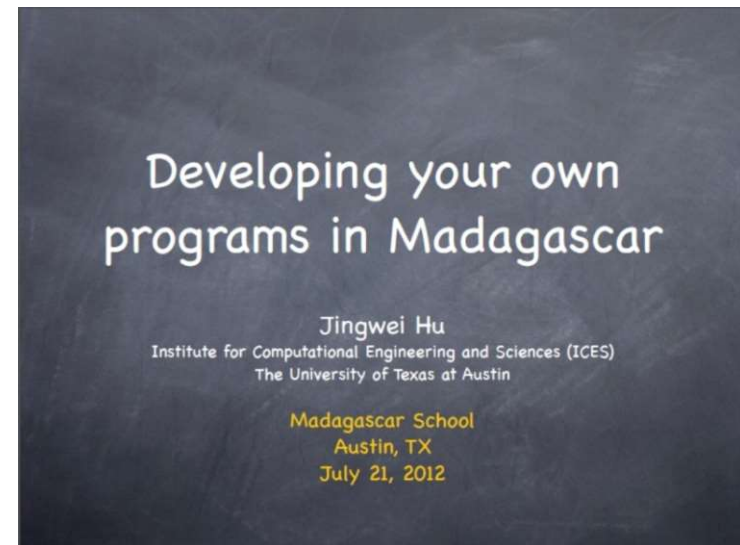
Center for Wave Phenomena
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(Godwin, School, 2010)

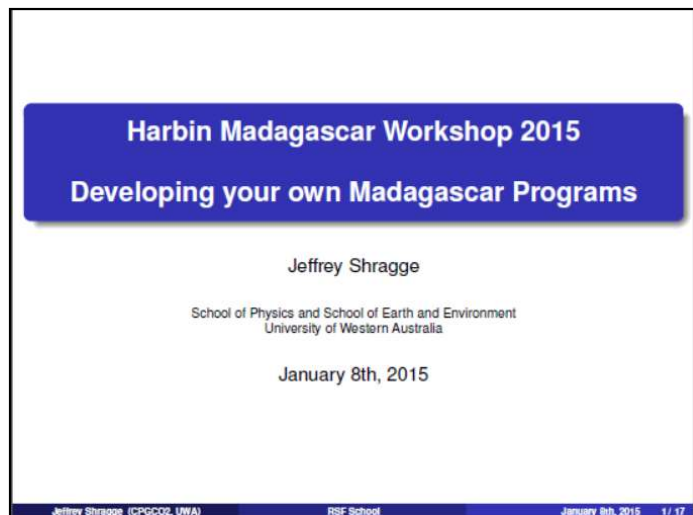
More presentations about Developing programs



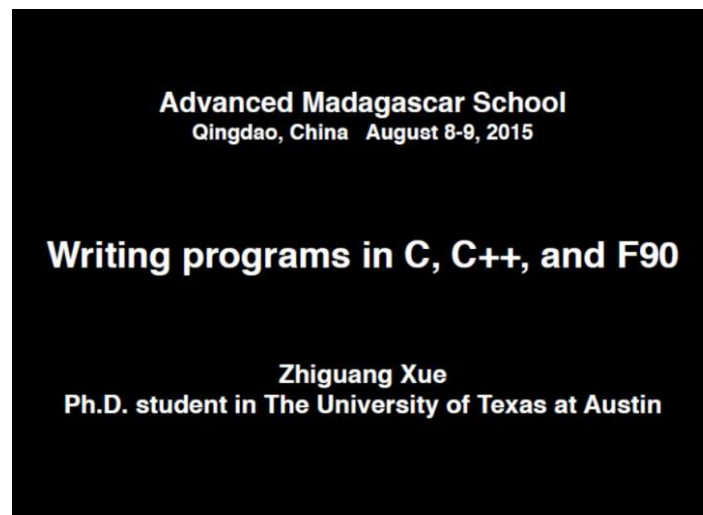
(Shragge, School, 2011)



(Hu, School, 2012)



(Shragge, School, 2015)



(Xue, School, 2015)



(Fang, School, 2017)

How to add your own programs

- Create a directory for yourself or your group under RSFSRC/user. Put your programs there.
- Create a SConstruct file in your directory by following examples from other user directories.
- http://www.ahay.org/wiki/Adding_new_programs_to_Madagascar

A Madagascar modules is not included in the official distribution until there is an example of its usage in reproducible documents.

How to contribute your programs

- [Register at GitHub.](#)
- Access Madagascar project at <https://github.com/ahay>
- Use either Git or Subversion.
- Add reproducible examples of using your program under RSFSRC/book.
http://www.ahay.org/wiki/Contributing_new_programs_to_Madagascar



Communication Tools

- Wiki page

- <http://www.ahay.org/>



- Blog

- <http://ahay.org/blog/>



- GitHub project

- <https://github.com/ahay/>



- GitHub issues

- <https://github.com/ahay/src/issues>



- Mailing lists

- <https://sourceforge.net/projects/rsf/lists/rsf-user>
- <https://sourceforge.net/projects/rsf/lists/rsf-devel>

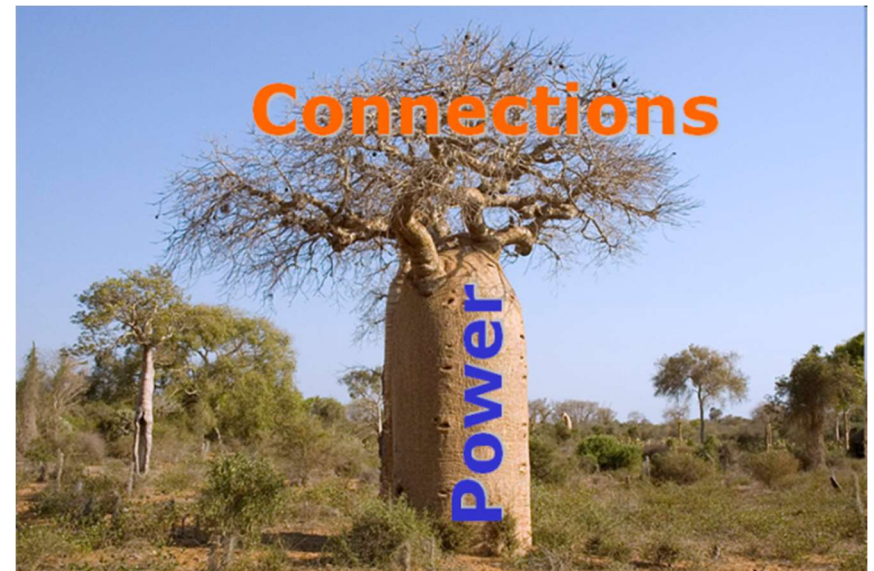


- LinkedIn group

- <https://www.linkedin.com/groups/1847746/>



Summary



- **Power**
 - Run a program as you wish
 - Help yourself by improving the program
 - Help community by sharing your program
- **Connections**
 - Easy to join and contribute
 - Wiki, mailing list, conferences, blog

Conclusions

- **Recognize Madagascar project as a community effort.**
- **Understand freedoms provided by open source.**
- **Use online communication tools to participate in the development and to connect with other users.**
- **Attend schools and working workshops.**

