

Computing for Young Astronomers

- Next generation of astronomers (you!) have exciting and powerful computing tools available for doing research
- Don't blindly accept tools that were "good enough" for your advisor (SM, fortran, shell script)
- Instead use a modern scripting language (python, perl, S-lang) for high-level analysis (plotting, table/data manipulation, model fitting).
- Write data reduction tasks as scripts.
- Even create ds9 images via scripts¹
- Use C or C++ for CPU intensive code (but vectorized high-level code is often nearly as fast)

¹You'll be happy when the referee makes some idiotic request to change your beautiful ds9 image that took 2 hours to get just right the first time (4 months ago)

Why choose python?

From Perl, S-lang and python, only python has all these features:

- Rapidly growing worldwide acceptance in scientific computing (SciPy/EuroSciPy conferences). Google “astronomy python”
- Huge developer and user community (comp.lang.python)
- Robust numerical computing (numpy, scipy): actively developed
- Multiple good 2-d plotting packages (matplotlib, etc)
- Amazing 3-d scientific data visualization (mayavi)
- Sophisticated model fitting (sherpa)
- Broad institutional support for astronomy (STSci, VO, CXC)
- Support for basic needs (FITS tables) and slightly more exotic (XPA, HDF5, PVM, GSL) and much much more.
- Access to thousands of 3rd party modules, dozens more daily
- Clean code with full object oriented programming
- AND ... program your Android cell phone!! (“android scripting”)

Only python has it all...

	Python	Perl	S-lang
Rapidly growing worldwide acceptance in scientific computing (SciPy/EuroSciPy conferences). Google "astronomy python"	X		
Large developer and user community (comp.lang.python)	X	X	
Multiple 2-d plotting packages (matplotlib, etc)	X	X	X
Powerful 3-d scientific data visualization (mayavi)	X	X	
Robust numerical computing (numpy, scipy): actively developed	X	X	X
Sophisticated model fitting (sherpa)	X		X
Broad institutional support for astronomy (STSci, VO, CXC)	X		
Basic stuff (FITS tables) and slightly more exotic (XPA, HDF5, PVM, GSL)	X	X	X
And much much more: thousands of 3rd party modules	X	X	
Clean maintainable code	X		X
Full object oriented programming	X	X	
AND ... program your Android cell phone!! Google "android scripting"	X		