



Using *pointlike* at the FSSC



Designed for Rapid LAT Analysis

- *Pointlike* was designed by Toby Burnett (University of Washington)
 - Uses python architecture
 - Toby currently maintains and develops the software
 - Recently added suite of diagnostic tools and iPython notebook documentation
- *Pointlike* speeds up likelihood calculations by:
 - Using Healpix spatial binning and smart energy binning
 - Making some basic rational assumptions with the likelihood function
- Everything *pointlike* does can be performed by *gtlike*



Motivation

- *Pointlike* is used by the LAT Collaboration to:
 - Generate seed positions (and source localizations) for the source catalog analysis pipeline
 - Rapid tests for spatial extension in small increments
 - In-depth characterization of a large number of supernova remnants
- Toby wishes to retire from maintaining *pointlike*
 - Needs support to handle routine (non-development) software issues
 - Needs people to build experience with *pointlike* analysis
 - Toby will continue to handle bug fixes and may develop new capabilities
- The FSSC can meet both needs
 - In the process, develop insight and expertise needed to explore paths for future *pointlike* release



FSSC Involvement

- FSSC Software personnel:
 - Provide support to keep software running as platforms update and data formats evolve
 - Expect minimal manpower requirement
- FSSC Science personnel:
 - FSSC science interests include desire to use *pointlike*
 - E.g. As contributors to LAT catalog analysis
 - Diagnostic tools have made evaluation of *pointlike* output reasonably straightforward
 - Expect non-trivial effort required



Pointlike History

- Usage in several LAT team publications, especially for source localization/catalog and extended source studies, has generated interest from the user community
 - Several requests by the FUG to explore possibilities for development and public release
 - Previous investigations have found that *pointlike* cannot be included in the Science Tools without significant modification (incompatible architecture)
 - LAT team was willing to release *pointlike* as a user-contributed tool, but software needed more testing and documentation to allow robust use



Current Status & Goals

- Currently exploring task requirements and expectations
 - Working with Toby to evaluate the level of effort required for both science and software support
 - Gaining experience using *pointlike* for analysis
 - Evaluating the stability of the software and documentation needs
- Desired outcome
 - Development of *pointlike* expertise within the FSSC