HPC Educators:
Strategies for Introducing Parallelism with Python

Steven Bogaerts
DePauw University
stevenbogaerts@depauw.edu
Professional Site

Joshua Stough
Washington and Lee University
stoughj@wlu.edu
www.cs.wlu.edu/~stough

sc13.wlu.edu
(All session materials)

The Python programming language has seen rapid growth in popularity both in academe and industry. As a lightweight high-level language that supports both functional and object-oriented programming, it provides many tools to allow programmers to easily express their ideas. This expressiveness extends to programming using parallelism and concurrency, allowing the early introduction of these increasingly critical concepts in the computer science core curriculum. In this half-day session we describe and demonstrate an educational module on parallelism, including materials on distributed systems and parallel image processing. We cover such key concepts as speedup, divide & conquer, communication, and concurrency. We consider how these concepts may be taught in the context of CS1 and CS2, and we provide extensive hands-on demonstrations of parallelized search, sort, image processing, and distributed computing.