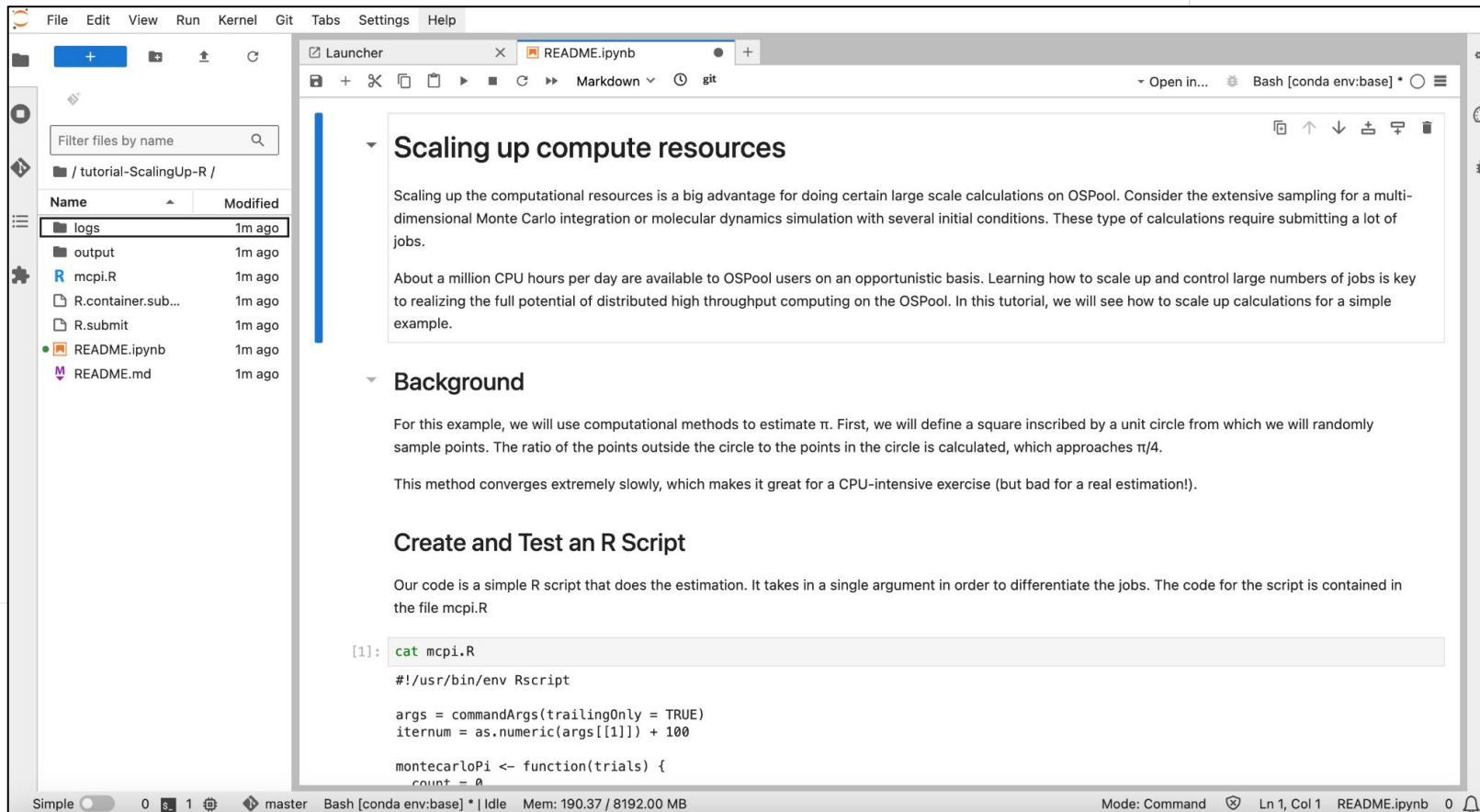
A condor is shown in flight, soaring through a blue sky with scattered white clouds. The bird's wings are fully extended, revealing the intricate structure of its feathers. The condor has a black head and neck, a white breast, and black wings and tail. The background is a vast, open sky with soft, wispy clouds.

Soaring through HTCondor's Training and Documentation Resources

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University of Wisconsin – Madison

September 2024

Explore HTCondor with OSPool Notebooks



The screenshot shows a web-based notebook interface with a file explorer on the left and a main content area. The file explorer shows a directory structure with files like 'logs', 'output', 'mcpi.R', 'R.container.sub...', 'R.submit', 'README.ipynb', and 'README.md'. The main content area displays the text of the 'README.ipynb' file, which includes sections on scaling up compute resources, background information, and a code block for an R script.

Scaling up compute resources

Scaling up the computational resources is a big advantage for doing certain large scale calculations on OSPool. Consider the extensive sampling for a multi-dimensional Monte Carlo integration or molecular dynamics simulation with several initial conditions. These type of calculations require submitting a lot of jobs.

About a million CPU hours per day are available to OSPool users on an opportunistic basis. Learning how to scale up and control large numbers of jobs is key to realizing the full potential of distributed high throughput computing on the OSPool. In this tutorial, we will see how to scale up calculations for a simple example.

Background

For this example, we will use computational methods to estimate π . First, we will define a square inscribed by a unit circle from which we will randomly sample points. The ratio of the points outside the circle to the points in the circle is calculated, which approaches $\pi/4$.

This method converges extremely slowly, which makes it great for a CPU-intensive exercise (but bad for a real estimation!).

Create and Test an R Script

Our code is a simple R script that does the estimation. It takes in a single argument in order to differentiate the jobs. The code for the script is contained in the file mcpi.R

```
[1]: cat mcpi.R
#!/usr/bin/env Rscript

args = commandArgs(trailingOnly = TRUE)
iternum = as.numeric(args[[1]]) + 100

montecarloPi <- function(trials) {
  count = 0
```



<https://notebook.ospool.osg-htc.org/>

HTCondor Manual

The screenshot displays the HTCondor Manual website. On the left is a dark sidebar with a search bar and a list of navigation links. The main content area on the right features the title 'HTCondor Version 23.9.6 Manual', a home icon, and a link to 'Edit on GitHub'. The main text describes the HTCondor Software Suite (HTCSS) and provides links to various guides and manuals. At the bottom of the sidebar, there is a 'Read the Docs' button and a version selector set to 'v: latest'.

HTCondor Manual

Search docs

QUICK START GUIDES

- Users' Quick Start Guide
- Downloading and Installing
- Overview

REFERENCE MANUALS

- Users' Manual
- Administrators' Manual
- ClassAds
- DAGMan Workflows
- Python Bindings

ADDITIONAL DOCS

- Cloud Computing
- Grid Computing
- Platform-Specific Information
- Recipes, Examples, and Other Answers
- Version History and Release Notes

REFERENCE, GLOSSARY AND INDEX

- Commands Reference (man pages)
- ClassAd Attributes
- Codes and Other Needed Values

Read the Docs v: latest

» HTCondor Version 23.9.6 Manual [Edit on GitHub](#)

HTCondor Version 23.9.6 Manual

The HTCondor Software Suite (HTCSS) is a software system that creates a High-Throughput Computing (HTC) environment. This environment might be a single cluster, a set of related clusters on a campus, cloud resources, or national or international federations of computers.

If you are a user of HTCondor, and have been given a login or credentials to use a batch scheduler on an Access Point (sometimes called a scheduler or login node), you may want to read our Quick Start guide here: [Users' Quick Start Guide](#)

If you are a beginning administrator of HTCondor, or want to install it for the first time, please look at our installation guide here: [Downloading and Installing](#)

Otherwise, for users of HTCondor who want more information, a complete user's reference manual is here: [Users' Manual](#), and a similar complete reference for administrators of HTCondor can be found here: [Administrators' Manual](#)

HTCondor contains many command line tools, each with a traditional Unix "man-page". These may be found here: [Commands Reference \(man pages\)](#)

Finally, for users writing Python interfaces to HTCondor, our Python API documentation is here: [Python Bindings](#)

A complete table of contents follows.

Manual built on August 8, 2024

Quick start guides

- [Users' Quick Start Guide](#)
 - [What is a Job?](#)

<https://htcondor.readthedocs.io>

What if I can't read the *whole* manual?

Command Reference Manual

HTCondor Manual

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- Downloading and Installing
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- Grid Computing
- Platform-Specific Information
- Recipes, Examples, and Other Answers
- Version History and Release Notes

REFERENCE, GLOSSARY AND INDEX

- Commands Reference (man pages)
- HTCondor's ClassAd Mechanism
- `classad_eval`

Read the Docs v: latest

» Commands Reference (man pages) [Edit on GitHub](#)

Commands Reference (man pages)

HTCondor ships with many command line tools. While the number may seem overwhelming at first, they can be divided into a few groups:

A map of all the tools

Commands that manage jobs:

```
condor_rm, condor_submit, condor_submit_dag, condor_suspend, condor_continue, condor_hold, condor_release, condor_transfer_data, condor_q, condor_qedit, condor_history
```

Documentation Index for Quick References

HTCondor Manual

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Symbols

<credential_service_name>_oauth_permissions Submit commands	<name>OpenCLVersion Machine ClassAd Attribute
<credential_service_name>_oauth_resource Submit commands	<Name>Provisioned Job ClassAd Attribute
<DaemonName>_ENVIRONMENT MASTER Configuration Options	<name>RuntimeVersion Machine ClassAd Attribute
<Keyword>_HOOK_EVICT_CLAIM HOOKS Configuration Options	<none> group
<Keyword>_HOOK_FETCH_WORK HOOKS Configuration Options	<OAuth2Service>_AUTHORIZATION_URL SCHEDD Configuration Options
<Keyword>_HOOK_JOB_CLEANUP HOOKS Configuration Options	<OAuth2Service>_CLIENT_ID SCHEDD Configuration Options
<Keyword>_HOOK_JOB_EXIT HOOKS Configuration Options	<OAuth2Service>_CLIENT_SECRET_FILE SCHEDD Configuration Options
<Keyword>_HOOK_JOB_EXIT_TIMEOUT HOOKS Configuration Options	<OAuth2Service>_RETURN_URL_SUFFIX SCHEDD Configuration Options
<Keyword>_HOOK_JOB_FINALIZE HOOKS Configuration Options	<OAuth2Service>_TOKEN_URL SCHEDD Configuration Options
<Keyword>_HOOK_PREPARE_JOB HOOKS Configuration Options	<PLUGIN>_TEST_URL STARTER Configuration Options
<Keyword>_HOOK_PREPARE_JOB_ARGS HOOKS Configuration Options	<service-name>_container_port Submit commands
<Keyword>_HOOK_REPLY_CLAIM HOOKS Configuration Options	<service-name>_HostPort Submit commands
<Keyword>_HOOK_REPLY_FETCH HOOKS Configuration Options	<SUBSYS> MASTER Configuration Options
<Keyword>_HOOK_TRANSLATE_JOB HOOKS Configuration Options	<SUBSYS>_<LEVEL>_LOG Global Configuration Options
<Keyword>_HOOK_UPDATE_JOB_INFO HOOKS Configuration Options	<SUBSYS>_ADDRESS_FILE Global Configuration Options
<NAME>_LIMIT NEGOTIATOR Configuration Options	<SUBSYS>_ADMIN_EMAIL Global Configuration Options
<name>BoardTempC Machine ClassAd Attribute	<SUBSYS>_ARGS MASTER Configuration Options
	<SUBSYS>_ATTRS

Command line help options

- `man condor_submit`
- `condor_submit --help`



HTCCondor
Software Suite

HTCondor Software Suite Website

The screenshot shows the HTCondor Software Suite website homepage. At the top, there is a navigation bar with the HTCondor logo on the left and links for Software, Help & Support, Community, and About on the right. A Contact Us button is also present. The main content area features a large banner with a 3D visualization of a terrain. A white text box on the left side of the banner contains the following text: "NOAA funded marine scientist uses OSPool access to high throughput computing to explode her boundaries of research". Below this text is a "Read About Featured User" button. Below the banner, a central text block states: "HTCondor Software Suite (HTCSS) provides an array of services for automating and managing High Throughput workloads and computing capacity." Below this, there are three columns of content: "News", "HTCSS Impact", and "Latest Releases".

HTCondor Software Suite (HTCSS) provides an array of services for automating and managing High Throughput workloads and computing capacity.

News	HTCSS Impact	Latest Releases
<p>European HTCondor Workshop: Abstract Submission Open July 23, 2024</p> <p>High Throughput Community Builds Stronger Ties at HTC24 Week July 17, 2024</p> <p>CHTC Launches First Fellow Program June 26, 2024</p> <p>Registration is open for the European HTCondor Workshop, September 24-27 June 21, 2024</p>	<p>View the contributions of HTCSS to the world of computing, scientific research, and the projects using it across the globe.</p> <p>See the Impact of HTCSS</p>	<p>HTCondor</p> <p><u>Feature</u> 23.9.6 August 8, 2024</p> <p><u>Long Term Support</u> 23.0.14 August 8, 2024</p> <p>HTCondor-CE</p> <p><u>Latest</u> 23.9.1 August 8, 2024</p>

htcondor.org

HTCondor Software Suite (HTCSS) Website

<https://htcondor.org/>

Help/Support List

Get answers to questions on using and configuring HTCSS from the developers and the wider community.

[Message List](#)

[Subscription Email](#)

[Subscription Page](#)

[Archives](#)

Announcements

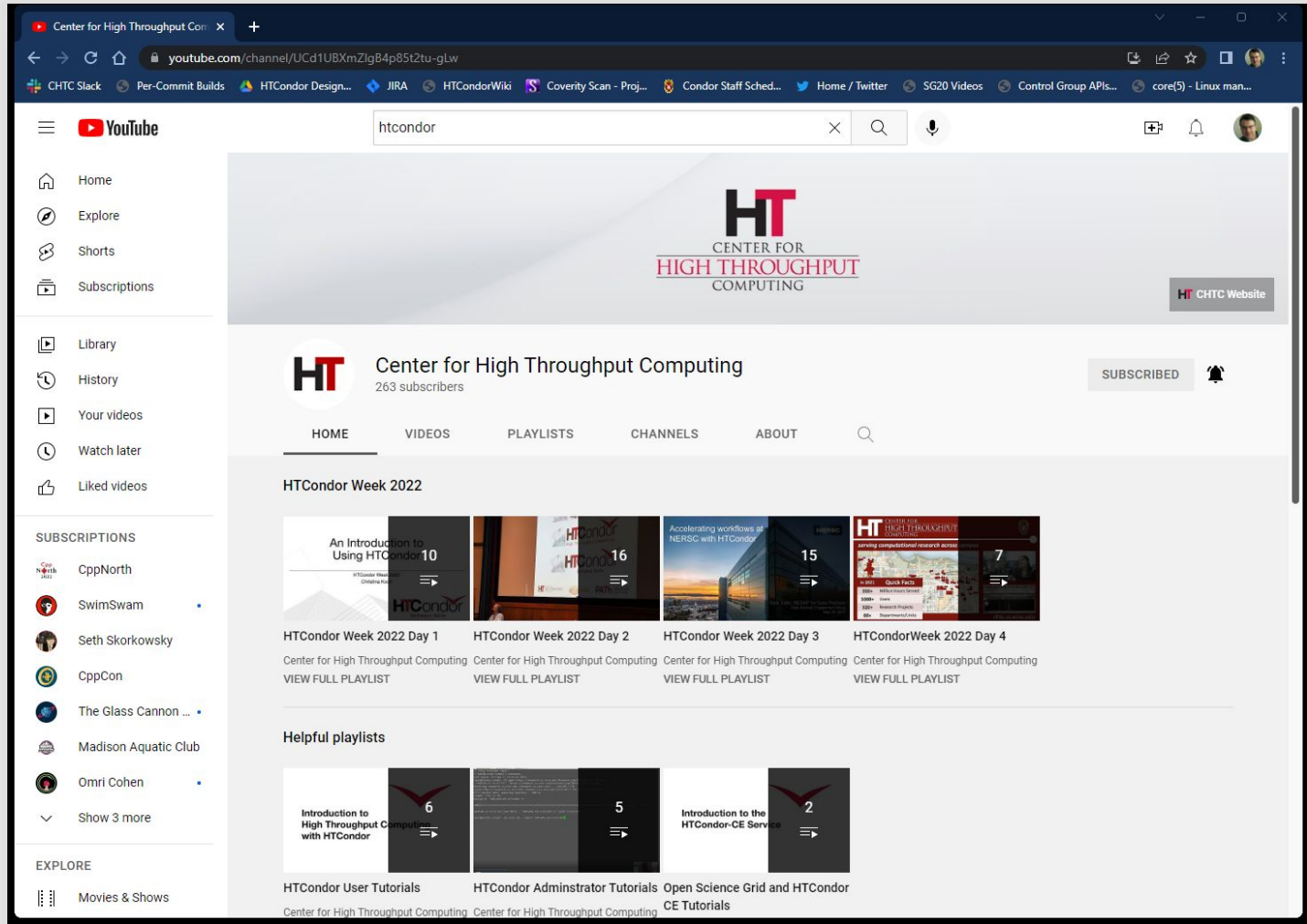
Receive email about new versions, security issues, workshops.

[Subscription Email](#)

[Subscription Page](#)

[Archives](#)

Email: htcondor-support@cs.wisc.edu



Center for High Throughput Computing



Annual, Week-Long OSG School

Learn how HTC systems work and how to apply tools like HTCondor to your *own research* through lectures, discussions, and hands-on activities.



In 2024, 60 participants attended, originating from 4 countries (India, Mali, Uganda, and the United States), 24 U.S. states, and 42 institutions.



Questions?

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