

# 1<sup>st</sup> NASA LRC Fortran Tutorial

## Introduction and Setup

Carlos Cruz  
Jules Kouatchou  
Bruce Van Aartsen

NASA GSFC Code 606 (ASTG)  
Greenbelt, Maryland 20771

October 24-25, 2018

## Who we are?

- Carlos Cruz (Computational Scientist)
- Jules Kouatchou (Computational Scientist)
- Bruce Van Aartsen (Senior Software Engineer)

We are members of the Advanced Software Technology Group (ASTG) Code 606, NASA GSFC.



# Agenda

## Day 1

- Introduction to Fortran
- Variables and data types
- Conditionals and loops
- Array concepts
- Subroutines and functions
- Modules and interfaces
- File IO

## Day 2

- Derived types and pointers
- Introduction to OOP
- IO Enhancements
- Inheritance
- Polymorphism
- Miscellaneous items
- Interoperability with C

Introduction to Fortran 90-95

Introduction to Fortran 2003



# Get Lecture Materials from Github

Open a terminal (Linux/Mac) or command prompt (Windows) and use Git:  
`git clone https://github.com/cacruz/LRC_Fall18_Fortran.git`

If Git is not available or Git is not working then, in your browser open [https://github.com/cacruz/LRC\\_Fall18\\_Fortran.git](https://github.com/cacruz/LRC_Fall18_Fortran.git), and download the zip file.

cacruz / LRC\_Fall18\_Fortran

Unwatch 3 Star 0 Fork 0

Code Issues Pull requests Projects Wiki Insights Settings

Fortran tutorial

Manage topics

57 commits 1 branch 0 releases 3 contributors

Branch: master New pull request

Create new file Upload files Find file Clone or download

Use SSH

Clone with HTTPS

Use Git or checkout with SVN using the web URL.

[https://github.com/cacruz/LRC\\_Fall18\\_Fortran.git](https://github.com/cacruz/LRC_Fall18_Fortran.git)

Open in Desktop Download ZIP

Get a zip file

caacruz Update README.md

Day\_1 More cleanup

Day\_2 minor tweaks

shared Move order of slide. Modify figure

src exercise for Derived Types

tex Reorganize folders. 3 days ago

README.md Update README.md 11 seconds ago

README.md

Fall 2018 Fortran Tutorial at NASA Langley



# Log in to Amazon EC2

Open a terminal (Linux/Mac) or command prompt (Windows) and go into the LRC\_Fall18\_Fortran directory/amazon (what you just downloaded):

```
cd LRC_Fall18_Fortran/amazon
chmod 400 fortranlrc.pem
ssh -i "fortranlrc.pem" <userid>@ec2-18-224-57-190.us-east-2.compute.amazonaws.com
```

substitute <userid> for your assigned userid

If your ssh command is successful then get the Fortran code in your Amazon account:

```
$ git clone https://github.com/cacruz/LRC_Fall18_Fortran.git
$ cd LRC_Fall18_Fortran/src
$ ls
01_Introduction
02_Data_types
03_Control_constructs
04_Array_concepts
etc...
```

If possible, leave terminal -with ssh connection- open for the rest of the day.

