Python for AI/ML: A Hands-on Workshop for Beginners – Day 1

Organized by: Department of Computer Science, LIMIT

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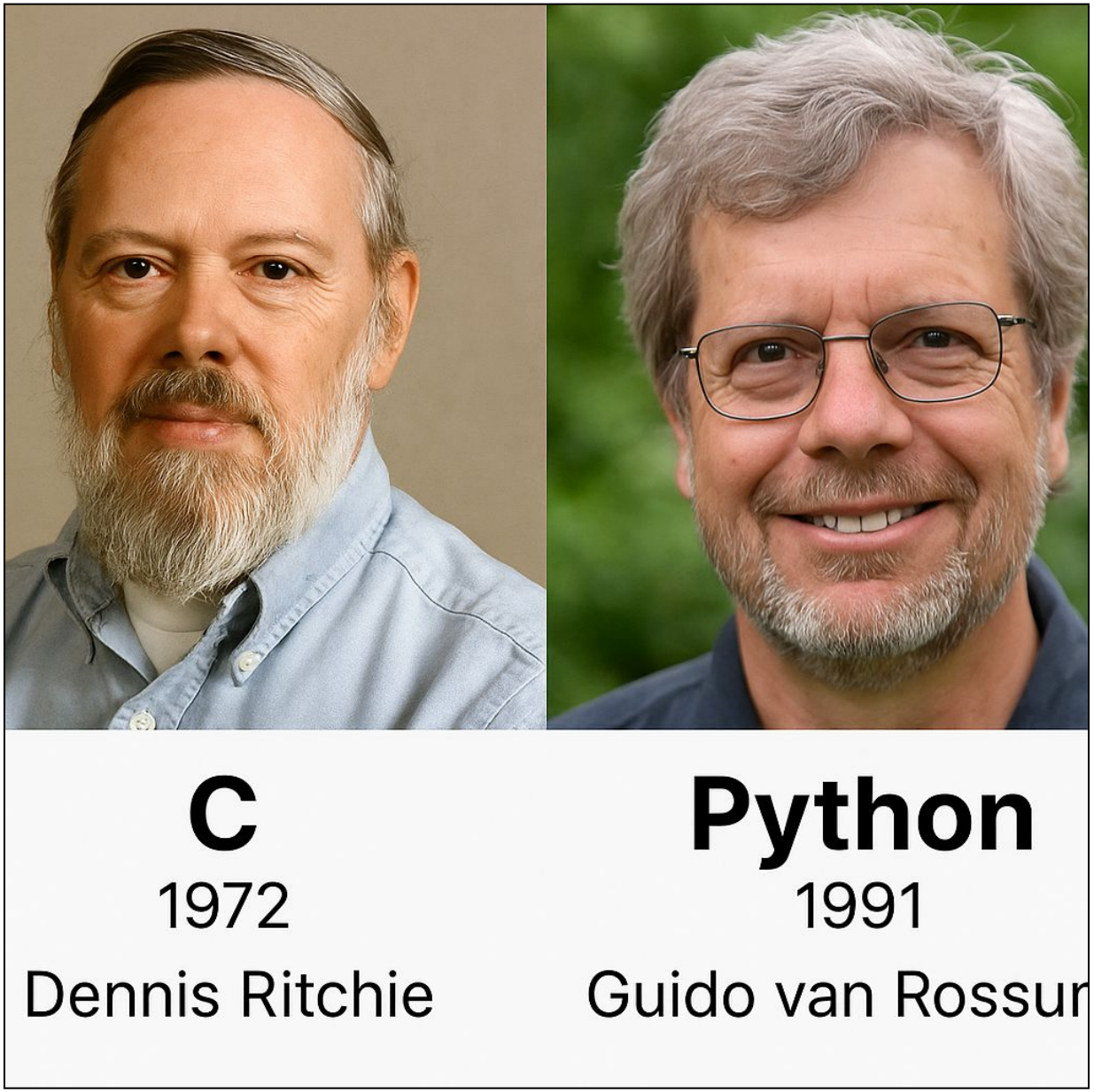
Workshop Overview

- Python programming :
  - Artificial Intelligence and
  - Machine Learning.
- Prior programming knowledge in C
- Transition from C to Pythonic code:
  - NumPy and
  - Pandas
  - TensorFlow
  - Pytorch
- The workshop is part of the AI/ML certification initiative at LIMIT.

Introduction and Motivation

- Why Python?
- Easy syntax, readable, dynamic typing
- Used in Data Science, AI/ML, Web Dev, Automation



Monty Python's Flying Circus

Python vs C Comparison

- Python: Interpreted, dynamic typing, indentation-based
- C: Compiled, static typing, curly braces & semicolons

C

```c
#include <stdio.h>
int main() {
    int a = 10;
    printf("Value of a is %d", a);
    return 0;
}
```

Python

```python
a = 10
print("Value of a is", a)
```

Environment Setup

- **Local:**
  - Install Anaconda,
  - use Jupyter Notebook
- **Cloud:** Use
  - Google Colab (no installation needed)
- **First Program:**
  - print("Hello, LIMIT!")

Tool	What It Is	Ideal For	Offline/Online
Anaconda	Python distribution + package/environment manager	Creating isolated environments, managing packages	Offline
Jupyter	Interactive notebook interface	Teaching, experimenting, documenting code	Offline/Online
Colab	Cloud-hosted version of Jupyter by Google	Quick sharing, GPU access, collaboration	Online only

Python Syntax

- Case-sensitive, indentation mandatory
- No semicolons needed
- Comments: # single-line, ''' multi-line '''

Variables in Python

- No need to declare type (dynamic typing)
- Examples: name = 'Alice', age = 25, pi = 3.14
- Data types: int, float, str, bool

python

```python
# Variable declaration and assignment
name = "Jasbir"
age = 21
height = 5.9
is_student = True

# Output the values
print("Name:", name)
print("Age:", age)
print("Height:", height)
print("Student:", is_student)
```

Basic Input/Output

- Input: input("Enter your name: ")
- Output: print(f"Hello, {name}!")
- Formatted printing using f-strings

```
# Taking user input
name = input("Enter your name: ")
age = input("Enter your age: ")

# Displaying output
print("Hello", name + "!")
print("You are", age, "years old.")
```

Hands-On Tasks

- Write 2-3 scripts using variables, input, output
- Save as .ipynb (Jupyter/Colab format)

https://colab.research.google.com/drive/1u5hvsiOejF_LyKoxWp3lZ6fderz5mBxJ?usp=sharing

Evaluation & Practice

- Quiz + Assignment at end of session
- File naming: Day1_Introduction_Python for AI/ML_Workshop.ipynb
- Submit via email/Google Classroom

Q&A / Wrap-Up

- Recap Day 1 topics
- Next: Data Types, Operators, Conditionals