Computer Networking

Course Description

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Lecturer
Computer Engineer
School of Engineering
Universidad Distrital Francisco José de Caldas

2024-III

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Outline

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Academic Experience

- **Computer Engineer**, M.Sc. in Computer Engineering, and *researcher* for 15 years.
- 7 years as **full-time associate professor** at colleges, for Computer Engineering programs.
- 3 years as **lecturer professor** for both colleges and goverment STEM programs.
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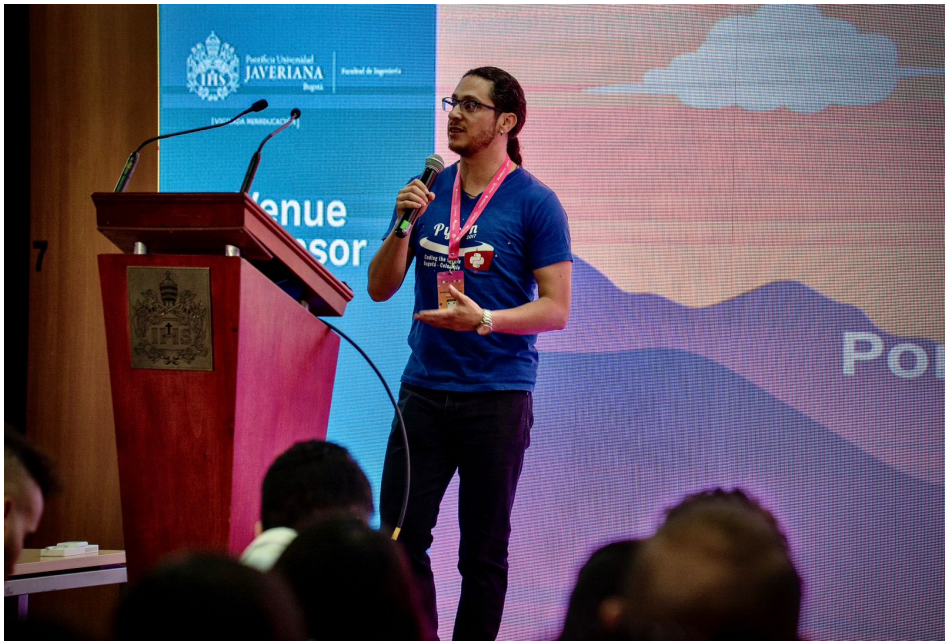

- PyCon Colombia and Python Bogotá **co-organizer**. Collaborations in ScipyLATAM and Jupyter LATAM.
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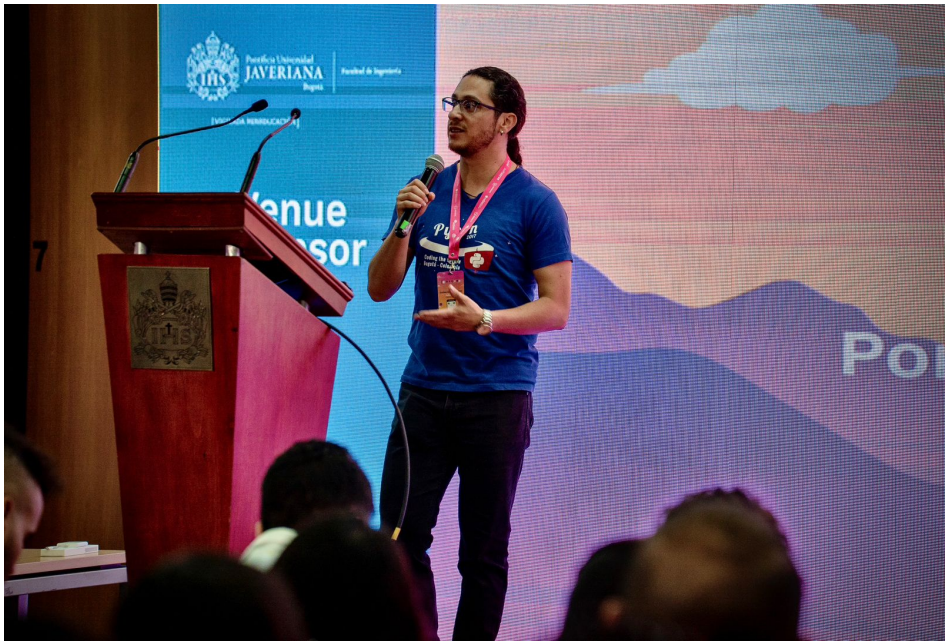

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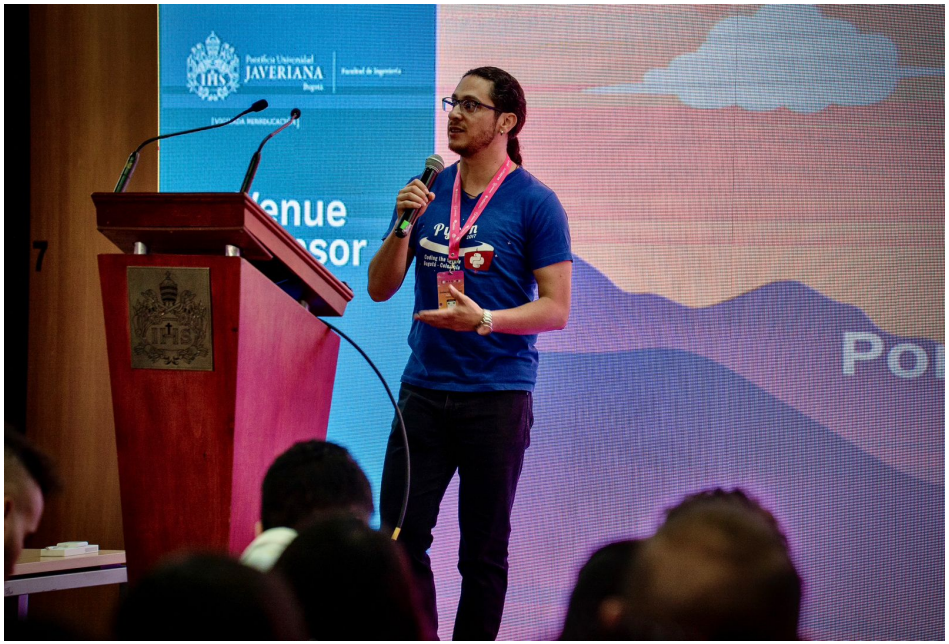

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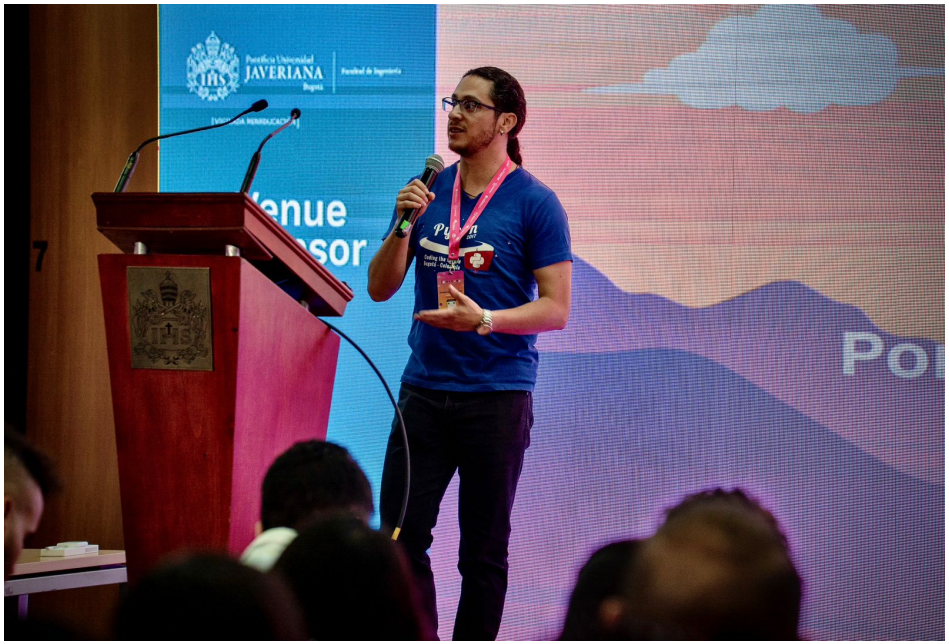

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Overview

This course is designed to introduce **undergraduate students** to foundations of **computer networking** and *recommendatios* of computer networks design. Also, in this course some **advanced topics** will be covered, such as cloud infrastructure, and **IoT** networks.

Classes will consist of lectures, **discussions**, practical examples, and workshops. Also, you must take some readings from *computer networking architectures*. In addition, there will be a **semester-long project**, as well one **final test**, four **workshops**, and ten additional **assignmens**.

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Goals

The main goal of this course is to provide undergraduate students with different **models**, **concepts**, and **tools** to understand the foundations involved in interconnecting devices for communications. It includes the exploration of *protocols*, *network hardware*, and *network services*.

At the end of this course you should be able to **design** a simple but functional **network solution** with a good level of **quality**. Also, you should be able to **think** in computer networking systems in both **on-premise** and **cloud** way.

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Prerequisites

This is a **basic course**, so you must have some knowledge in:

- **Programming** in Java or C++.
- **Command-line** interface foundations.
- **Git** basic usage, and **GitHub** basic usage.

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Syllabus I

Period	Topic	Time
Period I	Introduction to Computer Networking	2 sessions
	Networking Devices	2 sessions
	Basic Concepts of Computer Networking	3 sessions
	Workshop of Network Architecture	1 session
	Networks Layers I	4 sessions
	Subnetting and Routing	2 sessions
	Workshop Network Subnetting	1 session
	Projects Catch-Up	1 session

Table: Schedule for Period I

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Syllabus II

Period	Topic	Time
Period II	Networks Layers II	4 sessions
	Networks Services	3 sessions
	Workshop on Network Services	1 session
	Networks Troubleshooting	3 sessions
	Internet and Wireless	3 sessions
	Workshop on The Cloud	1 session
	Course Test	1 session
	Projects Dissertation	2 sessions
Period III		

Table: Schedule for Periods II & III

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Grades Percentages

Period	Item	Percentage
Period I	Assignments	5%
	Workshops	20%
	Project Catch-Up	10%
Period II	Assignments	5%
	Workshops	20%
	Test	10%
Period III	Paper + Poster	5%
	Project Dissertation	10%
	Project Report	15%

Table: Computer Networking Grades Distribution

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Don't hate the player, hate the game

- All asignments must be submitted hand-written on **time** and in **english**. Grammar and spelling will **not** be evaluated.
- Copying and pasting from internet is **forbidden**. Please, **develop** your own solutions.
- Class attendance is **not mandatory**. If you **miss** classes, you must *study by yourself*.
- No cell-phones, no smartwatches, no whatsapp, no tinder, no smartanything. **Just you and your brain**. Pay attention at clase.
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Code of Conduct

- Always be **respectful** to your classmates and to me. You must be **kind** with everyone inside (*and outside*) the classroom.
- There is no a better programming language, tool, or technology. There are only **better** or **worse** solutions.
- You must be **honest** with your work. If you don't know something, just **ask** me. I will be glad to help you.
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Bibliography

Recommened bibliography:

- **Computer Networks: A Systems Approach**, by Larry L. Peterson, Bruce S. Davie.
- **Redes de Ordenadores, un enfoque descendente basado en Internet**, by J.F. Kurose, K.W. Ross.
- **Comunicaciones y redes de computadores**, by William Stallings.
- **Redes e internet de alta Velocidad**, by William Stallings.

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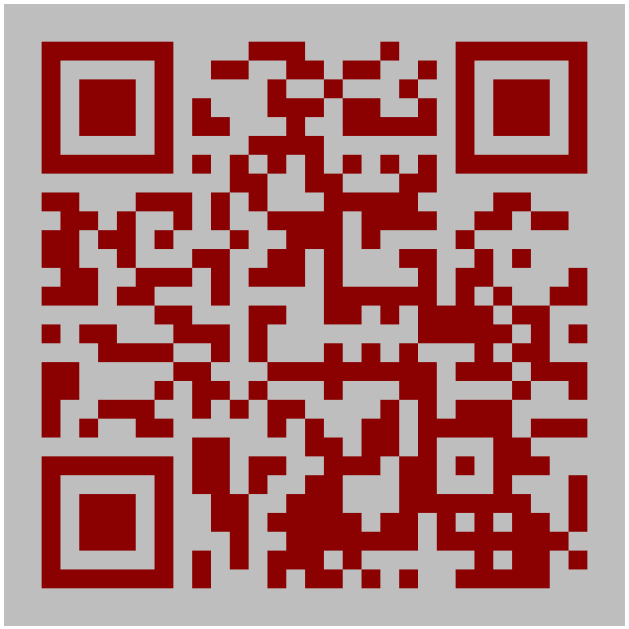
Thanks!

Questions?



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