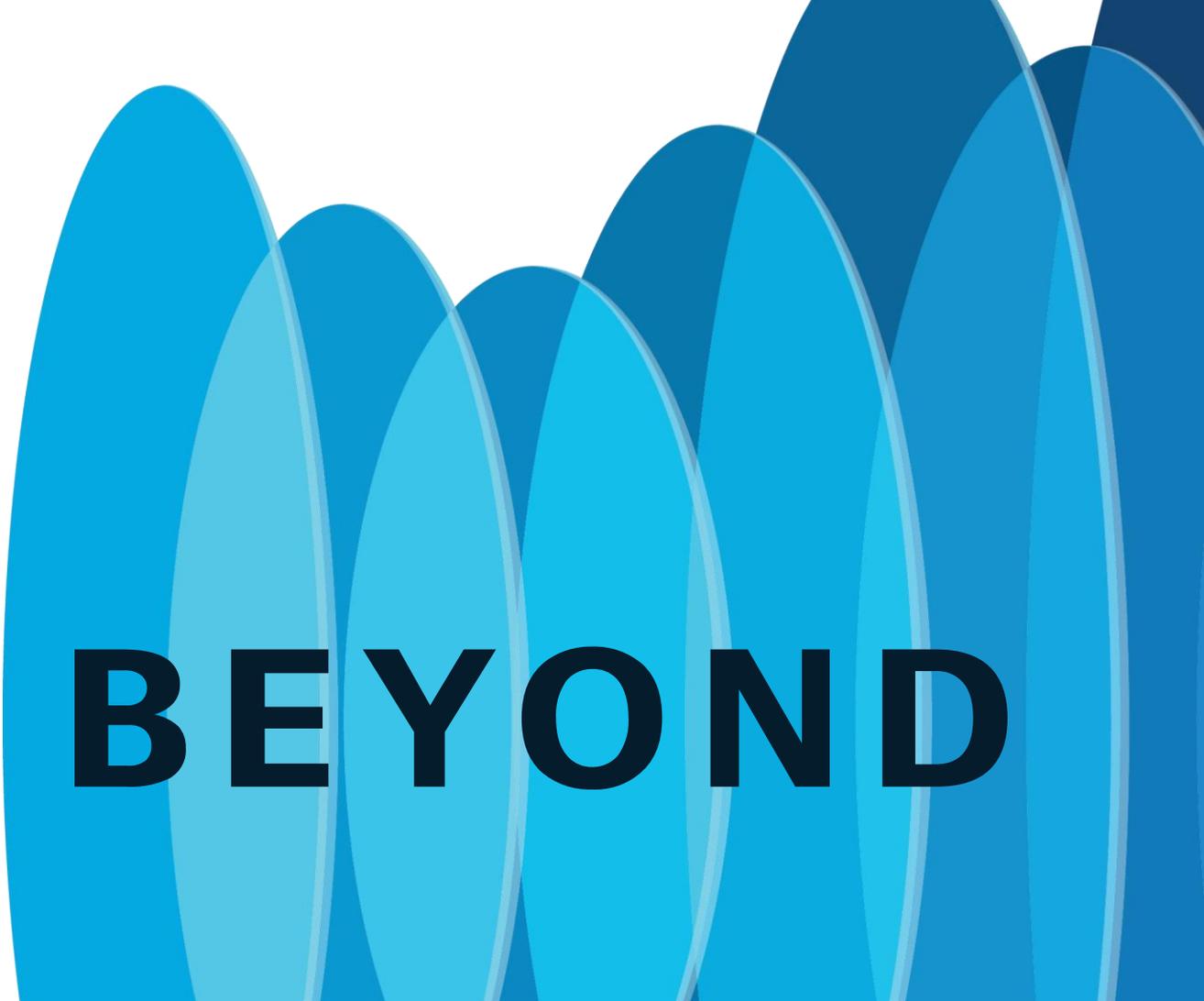


CISCO *Live!*

GO BEYOND

A series of overlapping, vertically-oriented ovals in various shades of blue, ranging from light to dark, positioned on the right side of the image.



Networking Academy Day

Morning Session

Willem-Jan Derks

Networking Academy & ASC/ITC Manager Netherlands

CISCO *Live!*



Agenda

- 1020 Brief Welcome
- 1025 Shaping the future: platform and product developments
- 1110 Thoughts on: feeding Europe's talent pipeline
- 1130 AI and the future of ICT skills
- 1215 Morning wrap up
- 1220 Lunch & conference visit

Agenda

- 1400 OT War Stories
- 1445 Capture The Flag: a playful way into Cybersecurity
- 1530 Introduction to Splunk
- 1550 iTalents: Boosting your career
- 1605 Awards
- 1620 Closing Notes
- 1630 Conference Visit

- 1830 Cisco Live Celebration

Agenda

- 1000 Brief Welcome
- 1005 Shaping the future: platform and product developments
- 1050 Thoughts on: feeding Europe's talent pipeline
- 1110 AI and the future of ICT skills
- 1155 Morning wrap up
- 1200 Lunch & conference visit



Shaping the future: platform and product developments

Cisco Live Amsterdam Netacad Conference

Giuseppe Cinque Principal Architect Learning at Cisco
@g5

LinkedIn



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Agenda

- Year in review
- Converged Platform Experience
- Portfolio Updates
- Artificial Intelligence
- Conclusion

It has been a busy year!

14

• New Curriculum Offerings

- Ethical Hacker
- AI Security Nuggets
- JavaScript Essentials 2
- Career Preparation Workshop 5.0
- Exploring Sustainability
- A Framework for Sustainability
- The Road to Intelligent Machines
- AI Fundamentals with IBM SkillsBuild
- AI with Intel (3 modules)
- Launching a Business Venture
- Managing a Business Venture
- Creating Compelling Reports

34

New Course Translations

- Arabic +8
- Dutch + 2
- French + 4
- German + 1
- Hungarian + 1
- Italian + 1
- Japanese +1
- Polish + 1
- Portuguese + 5
- Spanish + 5
- Turkish + 1
- Ukrainian + 4

1

Converged Platform!

- Integrated, seamless user experience
- Dynamic, role-based navigation
- Seamless continuity for legacy learning
- Engaging, personalized course delivery
- Flexible, simplified class management
- Webex-powered messaging & collaboration
- Reimagined content customization
- Educator access to authoring tools
- Robust Partner enablement
- Course and instructor training catalogs
- Greater Academy & ITC visibility in offers
- 22 courses from legacy Netacad in new mobile-first content delivery experience

The Approach

- The innovation dilemma: disruption & business continuity

NetAcad.com
legacy experience

SkillsForAll.com
Greenfield innovation space to build out
new teaching & learning experiences

Converged experience
new NetAcad.com

- Complete course portfolio available within new teaching & learning experiences
- Integrated educator, training and partner experiences



The Converged Experience:

Reimagined learner, instructor, and partner experiences

cisco *Live!*

The cybersecurity job market is hot!
See why 5 million learners began their journey with our [free intro to Cybersecurity course](#)

Learn the skills, land your dream job.



Learning Catalog

Educator Resources

GOALS

Take a free course

Get certified

Learn with an acad

Get job ready

SUBJECT AREAS

Cybersecurity

Networking

AI & Data Science

Programming >

Information Technology >

Cisco Packet Tracer >

Digital Literacy >

Professional Skills >

Sustainability >

Browse learners catalog

TAKE A FREE COURSE

Learn topics like networking, cybersecurity, and programming through courses backed by learning science and Cisco expertise - and prepare for certifications and

NetAcad

Legacy NetAcad

 Networking Academy

Explore ▾

WHAT'S NEW



Course | Self-paced

Networking Basics

A network connects computers, mobile phones, peripherals, and even IoT devices.

649,248 already enrolled

[View all courses](#)

Explore Cisco Packet Tracer >

Career Resources >

Success Stories >

Badges and Certifications >



DUE DATE
31 May 2023, 11:59 pm
POINTS
100
SUBMISSION
Required

INSTRUCTIONS
Read and submit your understanding from "Module 1: Introduction to Cyber Security" unit. Your understanding in minimum 500 words. Here is the link to the unit.

ATTACHMENTS
Reference Document

CONTENT
Read "The Cube From Organisational Data"

Introduction to Cybersecu...
Course Outline Resources

PRE- ASSESSMENT
Check Your Skills

- MODULE 1
Introduction to Cyber Sec
- Resources
- World of Cybersecurity
- Organisational Data
 - 1.2.1 Types of Or
 - 1.2.1.1 Traditio
 - 1.2.1.2 Intern... and Big Data
 - 1.2.1.2.1 De
 - 1.2.1.2.2 Se
 - 1.2.1.2.3 Id

MODULE 1
Introduction to Cyber Security 30%

Resources

- World of Cybersecurity
- Organisational Data
- 1.2.1 Types of Organizational Data
- 1.2.2 The Cube 50 Pts
- 1.2.3 What Do You Think?

- English
- français
- Española
- português
- ارداردو
- 日本
- Deutsch



MODULE 1

Introduction to Cyber Security



30%



Networking Academy

Introduction to Cybersecurity Summer



35% co



Read "Security Measures From Organisational Data"

Edit Details



W

Networking Academy

Introduction to Cybersecurity Summer



35% completed



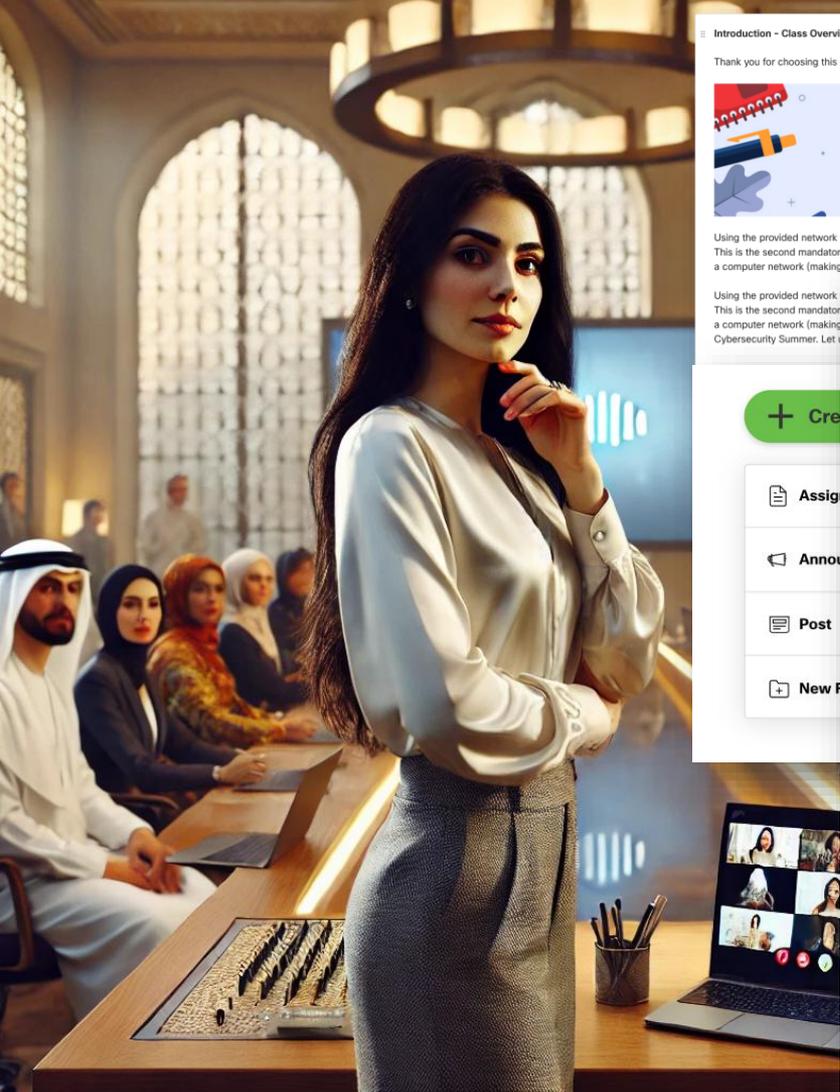
Manage Gradebook

Search...

Bulk Actions

+ Cr

<input type="checkbox"/> Name	Weights (%)	Type	Max Grades
<input type="checkbox"/> Assessments	10 %		
<input type="checkbox"/> Module 1 - Assessment Quiz		Curricular	100
<input type="checkbox"/> Module 2 - Quiz		Custom	100
<input type="checkbox"/> Module 1 - Assignment 1		Curricular	100



Introduction - Class Overview

Thank you for choosing this class Introduction to Cybersecurity Summer. Let us show you around and how to get started.



Welcome

To the class

Using the provided network topology, create different networks so all hosts and routers can communicate. This is the second mandatory assignment for PC Hardware I (HWD101). The paper documents the practice of a computer network (making...

Using the provided network topology, create different networks so all hosts and routers can communicate. This is the second mandatory assignment for PC Hardware I (HWD101). The paper documents the practice of a computer network (making...

Show Instructor Signature

Upload Signature

Select from Template

Share Class Settings

Share all content

Assignments and Posts (2)

Module Assessment Quiz Assignment Activity

Introduction to Cybersecurity

Introduction - Welcome to Class Post

Physical Networking and Network Pr

Read 1.2.2 & 1.2.5 from Organisation

Security Best Practices

Maintain Secure Infrastructure

Resources

Video - The Anatomy of an Attacker

Page - What is cybersecurity?

Video - Internal and External Threats [Draft]



Creating trial class

- The trial class is by invitation only.
- Invitations are limited to a maximum of 10 learners.
- No recognitions, badges, or certificates are issued for the trial class.

Important : The trial class is for learning class creation and operation. Once published, this class cannot be converted into an actual, functional class.

Cancel

Continue Test class

Pages

Search Page

1 Setup Page Info

2 Select Template

Select Page Template

Select Editor Type
You can switch between Classic later in the editor, but Advanced component editor can't be switched once selected.

Advanced Component Editor
Experience multi-page editor with dynamic interactive components with advanced formatting options.

Classic Editor
Simple WYSIWYG Editor, Customise text formatting and enjoy simplest page builder with cleanest editor.

Choose Template

Search

All Templates

Blank Page [Preview](#)

Assessment Page [Preview](#)

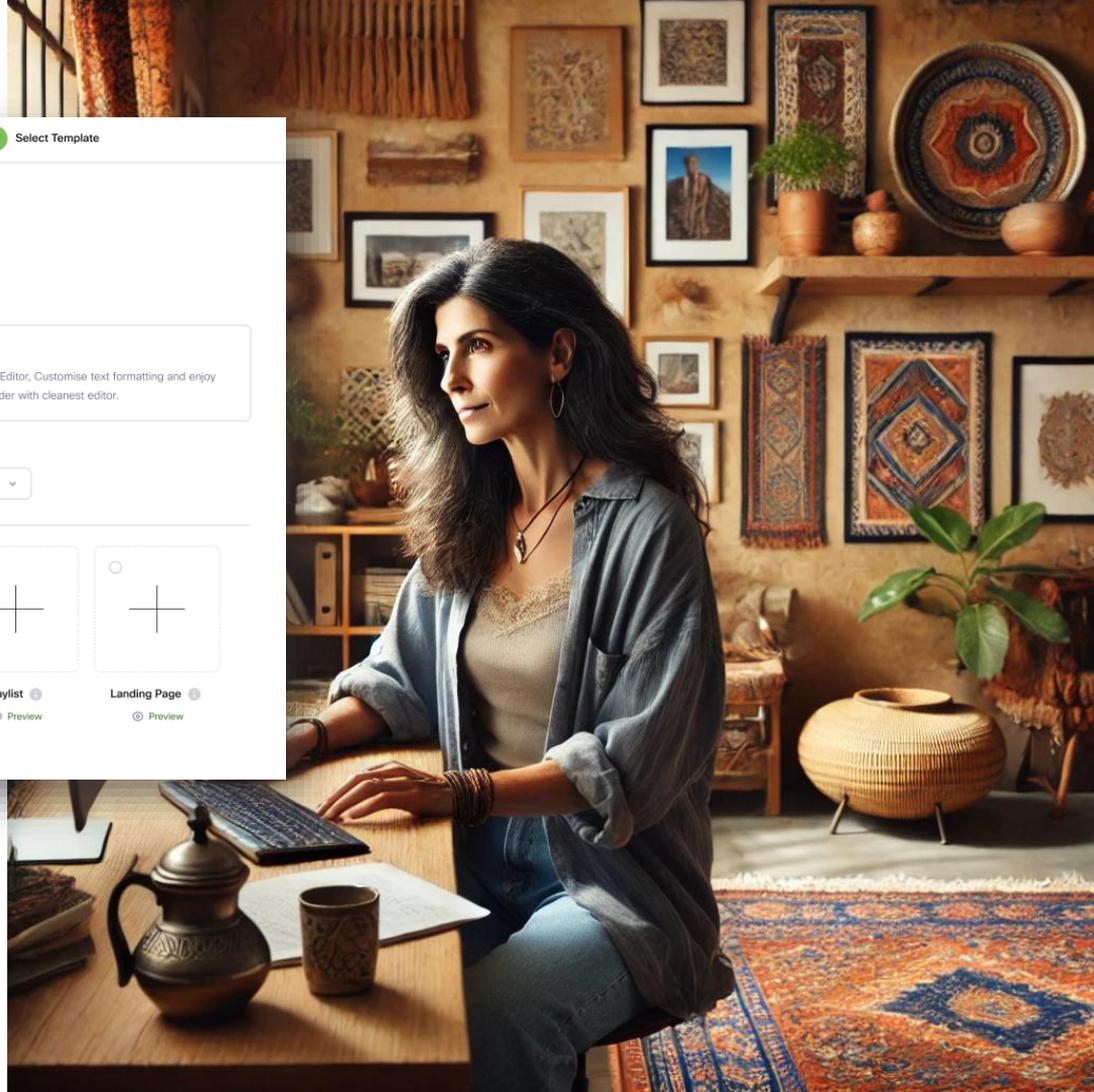
Video Page [Preview](#)

Article With Hero [Preview](#)

Playlist [Preview](#)

Landing Page [Preview](#)

Add New Page





Where can I learn AI?

My Organization

- All Classes
- Academy Offerings**
- Equipment List
- Users
- My Support Cases
- ASC Relat

View & Update Organization Details

Organization Information

Organiz

San

Acad

The inf

Address

Search

1 Wa

Street

1 Wa

State *

CA

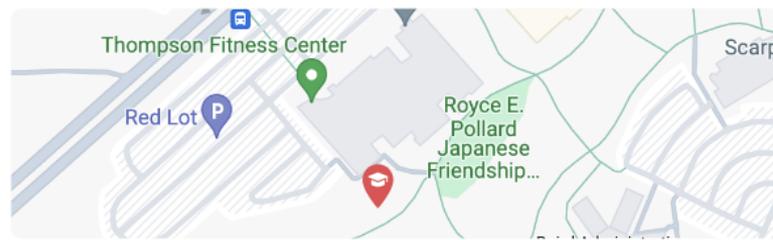
Postco

9519

Teachnw - Cisco Instructor Training Center At Clark College

1933 Fort Vancouver Way, Vancouver, Washington 98663 | United States

<http://www.teachnw.com> (925) 354-8785 (925) 354-8785



Clark College Instructor Training Center (ITC). Visit us at www.teachnw.com W

Academy for over a decade. We have a staff of eleven well qualified teachers (one of which is available 100% online through a Netlab interface technology).

very successful. We have the flexibility of 100% online training with the quality online live video conference meetings with our trainers). A new instructor will

they complete many of the same labs, lectures, and exams as their students w These are fully instructor led trainings with face-to-face 2x weekly meetings o

(providing remote access to our \$250k Cisco network lab equipment facility).

Catalog > Introduction to Cyber Security



Introduction to Cybersecurity

Discover the world of cybersecurity and its impact, as you uncover the most common threats, attacks and vulnerabilities.

Self-Paced Online
Learn online at your own pace

Instructor-Led
Learn with an academy

English ▼ Get started with self-paced 5,798,263 learners enrolled

AVAILABLE LANGUAGES
Deutsch, English, Español, Français, Nederlands, Polski, Português, العربية, українська



BEGINNER

15 HOURS

FREE

7 LABS

Digital Badges And Achievements

Here's what you can earn in this course:

Overview | Curriculum | Resources

Today's interconnected world makes everyone more susceptible to cyber-attacks. Whether you're attracted to the relatively new world of cybersecurity as a professional, or just interested in protecting yourself online and in social media, this introductory course is the answer. It explores cyber trends, threats—along with the broader topic of cybersecurity in a way that will matter to YOU. For instance, you'll learn how to protect your personal privacy, prerequisites re

Here's **Self-Paced Online**
Learn online at your own pace

Instructor-Led
Learn with an academy

Lorem ipsum do

English ▼

Find an academy

AVAILABLE LANGUAGES
Deutsch, English, Espa

Location *

San Jose, California, United States

By Name

Search by academy name, ID.

Search

ACADEMY NAME	ADDRESS	CONTACT
San Jose State University (SJSU) ID 20039079	1 Washington Square San Jose, California 95112 United States	http://www.sjsu.edu (925) 354-8785
AMA Computer College - Dumaguete ID 3004156	Martin Anita Matiao Bldg. San Jose cor. M. Perdices St. San Jose, California	https://www.ama.edu.ph/





Together for an
Inclusive Future for All



Platform Orientation for Educators

9 Video Tutorials

Basic Navigation (9:10)

Profile Management (4:47)

Class Creation (13:16)

Student Enrollment (5:55)

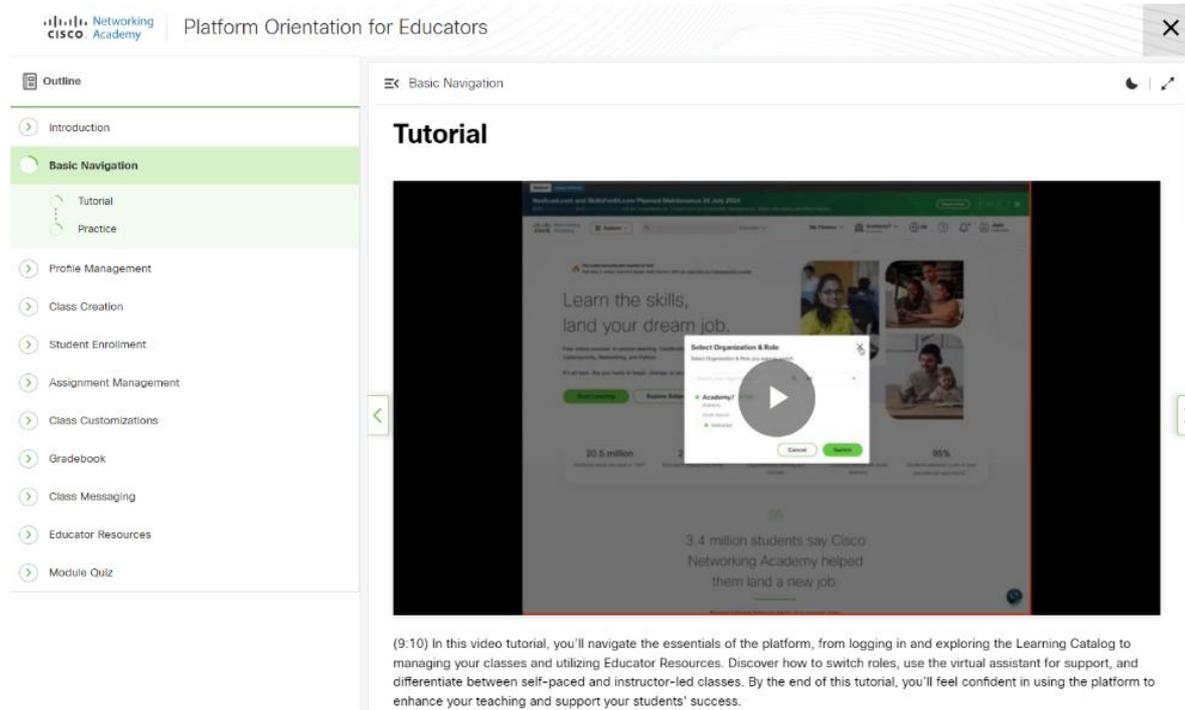
Assignment Management (9:05)

Class Customizations (10:16)

Gradebook (12:56)

Class Messaging (6:13)

Educator Resources (8:06)



The screenshot displays the Cisco Networking Academy interface for the 'Platform Orientation for Educators' tutorial. On the left, an 'Outline' menu lists various topics, with 'Basic Navigation' highlighted in green. The main content area shows a video player titled 'Basic Navigation' with a play button overlay. The video content includes a navigation menu and a 'Select Organization & Role' dialog box. Below the video, text states: '3.4 million students say Cisco Networking Academy helped them land a new job.'

(9:10) In this video tutorial, you'll navigate the essentials of the platform, from logging in and exploring the Learning Catalog to managing your classes and utilizing Educator Resources. Discover how to switch roles, use the virtual assistant for support, and differentiate between self-paced and instructor-led classes. By the end of this tutorial, you'll feel confident in using the platform to enhance your teaching and support your students' success.

Convergence Hub

- New Convergence Hub on new NetAcad.com
<http://cs.co/ConvergenceHub>
- Available in English, Spanish, Portuguese, French and Arabic
- Focus on information needed to teach/transition to the new educator experience
- Will include information about the sunset of the legacy experience

The screenshot shows the Cisco Networking Academy Convergence Hub website. The header includes the Cisco Academy logo, a search icon, and navigation links for 'My Classes', 'Cisco SK...', 'EN', and 'Done'. The main content is organized into several sections:

- Getting started**
 - For educators:**
 - [Quick Start Guide for Education](#)
 - [Welcome and Get Started](#)
 - [New teaching experience overview video](#) (2:30)
 - Share with your students:**
 - [Quick Start Guide for Students](#)
 - [Welcome and Get Started](#)
 - [New learning experience overview video](#) (2:30)
- Cisco Networking Academy Orientation Modules**
 - [Program Orientation for Educators](#) - Learn about the Cisco Networking Academy program, history, and benefits of joining our global community.
 - [Platform Orientation for Educators](#) - Explore the Cisco Networking Academy teaching platform, including features, benefits, and resources for educators to get started with critical tasks.
 - [Platform Orientation for Academy Administrators](#) - coming soon - Explore the Cisco Networking Academy platform, focusing on features and resources for academy administrators to get started with critical tasks.
- My Organization - Actions for Academy Administrators**
 - **Contacts:** Go to My Organization and review your organization's information, legal name, display name, address and contact information. Make sure the box is unchecked if you want your organization to show up on the locator.
 - **Contact and Staff roles:** Update all course offerings your organization offers and update your User list of staff and instructors.
 - **All:** Review and update your own website and marketing materials. Change any references to Skills for All to the program name Cisco Networking Academy and update links from skillsforall.com to netacad.com.
- Teaching on the new experience**
 - Learning Portfolio**

We now offer over 50 courses in up to 15 languages and will continue to add more. You can explore available courses and open new classes on the new NetAcad.com.

See the [Learning Portfolio Overview](#) for a comprehensive summary of our learning offerings, including which courses are available instructor-led and/or self-paced, language availability, and additional requirements or prerequisites by course.

In addition to courses, we offer a selection of modules, career paths, and learning collections. See below for a quick summary, and find more information in the Learning Portfolio Overview.

 - **Module** - A short learning component focused on a specific learning objective.
 - **Course** - A series of lessons designed to meet a set of learning objectives about a subject.
 - **Career Path** - A clear progression of courses or modules to prepare learners with the skills and knowledge needed for a specific job role and industry certification.
 - **Learning Collection** - A group of courses or modules to build knowledge on a topic.
 - Video resources**
 - [New NetAcad.com Top 5 Instructor Tasks](#)

The above webinar has also been split into individual videos for each topic:

 - [Accessions Legacy Courses](#)
 - [Control Student Enrollment](#)
 - [Course and Exam Setup](#)
 - [Course Completion Discounts Badges](#)
 - [Custom Avatars and Content](#)
 - [Platform Orientation for Educators](#) - topics include (individual videos within this module):
 - Basic Navigation
 - Profile Management
 - Creating Classes
 - Managing Enrollments
 - Assignment Management
 - Class Customizations
 - Gradebook
 - Class Messaging
 - Student Experience
 - Educator Resources
 - [Creative and migrating course customizations](#)
 - [My Knowledge Plans](#)

Includes sections on:

- Getting Started
- Cisco Networking Academy Orientation Modules
- My Organization actions
- Teaching on the new platform
 - Video resources
 - Written resources
- Teaching on the legacy platform
- Academy Management
- Stay in the know
 - News
 - Newsletters
 - Webinars

Convergence Hub

Explore >
Educator Resources >
Quick Links >
Convergence Hub

Available post-login

Convergence Hub

Getting started

For admins

Teaching on NetAcad

Teaching on Legacy

Academy management

Stay informed

NetAcad Legacy NetAcad

Networking Academy

Explore

Search for courses, artic... Educator

My Classes

EN

Tracy instructor

Learning Catalog **Educator Resources**

BY RESOURCE TYPE

- About the program >
- Teaching and learning >
- Practice tools and labs >
- Instructor Professional Development >

ABOUT THE PROGRAM

Find resources like orientation modules, legal documents, marketing tools, accessibility information, and more about ASC/ITC partners.

Resource | Program info

Program Orientation for Educators

Use this learning collection to get familiar with the Cisco Networking Academy program and platform.

Resource | Program info

Platform Orientation for Educators

Explore the main features of the Cisco Networking Academy platform for educators.

Resource | Program info

Global Impact Report

See how we're positively impacting millions of learners around the globe.

[View all](#)

[Learn more about the program](#)

[Browse educator resources](#)

WHAT'S NEW

AI Security Nuggets

Check out this video series from Cisco Distinguished Engineer, Omar Santos, all about AI security.

[Learn more](#)

STAY INFORMED

- News for educators >
- Upcoming events >
- Recognition >

QUICK LINKS

- [Convergence Hub](#) >
- [Marketing resources](#) >
- [Certification discounts](#) >
- [Find an ASC/ITC](#) >

Learning Portfolio

CISCO *Live!*



The Portfolio

Our Continued Focus

- Learning pathways for skill development: from curiosity to careers
- Critical, in-demand topics in tech including Networking, Cybersecurity, Data Science & AI, OS/IT, Programming, Professional Skills
- Flexible course delivery options
- Adding value with digital credentials
- Engaging learning experiences with integrated practice, assessments, and progress tracking
- Mobile-first – access anytime, anywhere

Launched in Last 12 Months

- Ethical Hacker
- AI Offerings (4)
- Sustainability Offerings (2)
- Entrepreneurship Offerings (2)
- Creating Compelling Reports
- JavaScript
- Career Preparation Workshop
- CCNA 1.1 Supplemental Modules
- CCST Instructor Training Courses

Coming Soon

- Industrial Networking and Cybersecurity (OT/IT)
- CCST IT Support
- Digital Literacy Courses 3 & 4
- Data Science Essentials—project-based, AI tutored
- AI Essentials

Cisco Networking Academy Portfolio

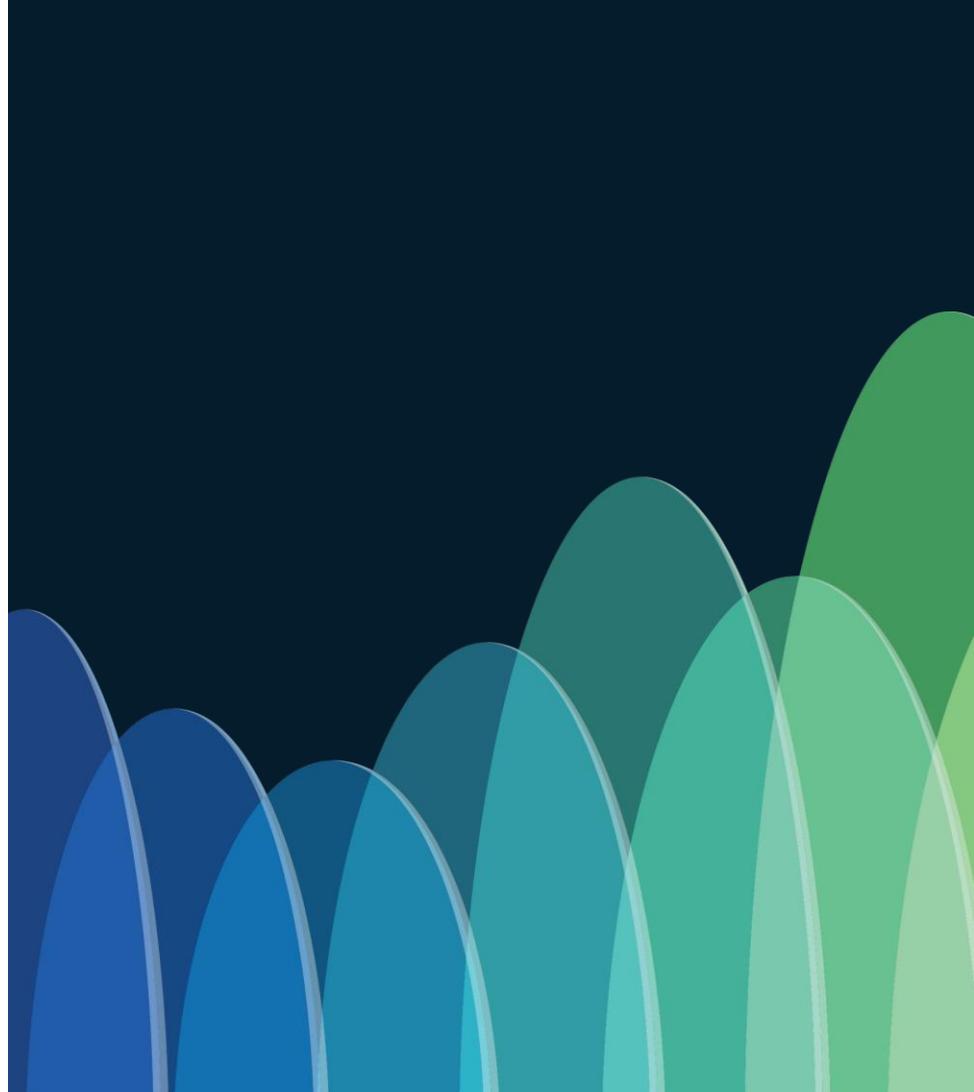
	Cybersecurity	Networking	AI & Data Science	Programming	Information Technology	Digital Literacy	Cisco Packet Tracer
Introductory	Introduction to Cybersecurity <i>Featured module: AI Security Nuggets</i>	Introduction to IoT and Digital Transformation	Introduction to Data Science AI Fundamentals with IBM SkillsBuild AI with Intel Learning Collection <i>Featured module: The Road to Intelligent Machines</i>		Computer Hardware Basics Operating System Basics Linux Unhatched	Digital Awareness Using Computer and Mobile Devices	Getting Started with Cisco Packet Tracer Exploring Networking with Cisco Packet Tracer Exploring Internet of Things with Cisco Packet Tracer
Intermediate	Aligned to Entry-level Certification	Cybersecurity Essentials Endpoint Security Network Defense Cyber Threat Management	Networking Essentials Networking Basics Networking Devices and Initial Configuration Network Addressing and Basic Troubleshooting Network Support and Security	Python Essentials 1 JavaScript Essentials 1 C Essentials 1 C++ Essentials 1	IT Essentials Linux Essentials		
	Aligned to Associate or Professional-level Certification	CyberOps Associate	CCNA: Introduction to Networks CCNA: Switching, Routing, and Wireless Essentials CCNA: Enterprise Networking, Security, & Automation DevNet Associate CCNP Enterprise: Core Networking CCNP Enterprise: Advanced Routing	Python Essentials 2 JavaScript Essentials 2 C Essentials 2 C Advanced C++ Essentials 2 C++ Advanced	Linux 1 Linux 2		
	Ethical Hacker Network Security		Data Analytics Essentials				

Professional Skills
Core Skills Creating Compelling Reports Engaging Stakeholders for Success
English for IT English for IT 1 and 2
Entrepreneurship Discovering Entrepreneurship Launching a Business Venture Managing a Business Venture
Career Resources Career Preparation Workshop
Practice Tools
Labs Cisco Packet Tracer Virtual machines Remote labs Physical equipment
Interactive Learning Built-in web widgets Interactive branching activities
Assessments Adaptive assessments powered by AI Formative quizzes and exams Summative exams



From Literacy to Career Skills

CISCO *Live!*



New Digital Literacy Learning Collection

1

DIGITAL AWARENESS

Learn fundamentals of using digital technologies, their impact on society and work, and how to manage a digital identity

2

USING COMPUTER AND MOBILE DEVICES

Learn basic skills on how to use computer and mobile devices (including some features, hardware, operating systems, and software) to access online services.

3

CREATE DIGITAL CONTENT, COMMUNICATE AND COLLABORATE ONLINE

Learn basic skills on how to create documents, communicate, and collaborate using digital technologies.

4

DIGITAL SAFETY AND SECURITY AWARENESS

Learn fundamentals of digital cyber threats, their potential consequences and how to improve your online security as well as how to protect your health and well-being while using digital technologies.

CISCO *Live!*

AVAILABLE
NOW

February 2025

New Digital Literacy Offering

Key Features

- **Interactive Learning Content:** In addition to numerous videos, the courses feature a wide range of interactive tools, including widgets, quizzes, and simulations, designed to keep learners engaged and motivated.
- **Framework Alignment:** Learning Objectives are inspired by the Digital Competence (DigComp) Framework
- **Credentials:** At the end of each course, upon successfully passing the final exam, learners will receive a Digital Badge and a Course Completion Certificate

- Password should contain at least 10 characters or more (longer is better)
- Password is too common, use another one!



Importance of the First Step

CISCO *Live!*



CCST Curriculum & Certifications

CCST Networking



Network Support
Technician



IT Support
Technician



Help Desk
Technician



IT Support
Specialist

CCST Cybersecurity



Cybersecurity
Technician



Junior Cybersecurity
Analyst



Help Desk
Support



Security
Operations
Analyst

NEW!

CCST IT Support



IT End User
Support



IT Help Desk
Support



Computer Support
Specialist



IT Help Desk
Analyst

Instructor Training Courses

Getting Ready to Teach
CCST Networking

Getting Ready to Teach
CCST Cybersecurity

Equip Instructors with necessary skills to effectively deliver complex concepts and ensure student success:

- Apply various pedagogical approaches to ensure students grasp complex networking and cybersecurity concepts.
- Cater to students' different learning styles
- Gauge students' understanding effectively to determine mastery of network concepts.

Now Available to Partners!



CCNA Curriculum updates

ITN

No changes

SRWE

New Supplemental Module

- 2.5 Interpret basic operations of Rapid PVST+ Spanning Tree Protocol
 - 2.5.b Port states and roles
 - 2.5.d Root guard, loop guard, BPDU filter, and BPDU guard

ENSA

New Supplemental Module

- 6.4 Explain AI (gen. and pred.) and ML in network operations
- 6.5 Describe characteristics of REST-based APIs (authentication types, CRUD, HTTP verbs, and data encoding)
- 6.6 Recognize the capabilities of configuration management mechanisms such as Ansible and

The screenshot shows the Cisco Academy website interface. The top navigation bar includes the Cisco Academy logo, search, and user options. The main content area displays a list of subjects and filters. The 'Modules' filter is selected, and two new supplemental modules are highlighted with a red box:

- CCNA SRWE Supplemental Module**: Additional content to supplement CCNA SRWE course for the new CCNA exam. Released September 2024.
- CCNA ENSA Supplemental Module**: Additional content to supplement CCNA ENSA course for the new CCNA exam. Released September 2024.

Now Available!

Cyber Skills

CISCO *Live!*





Cisco Certificate in Ethical Hacking

Validate Your Offensive Security Skills with Real-World Challenges

Take Your Cybersecurity Career to the Next Level
By Mastering the Tactics, Techniques, and Procedures Used by Threat Actors
To Proactively Discover and Mitigate Weaknesses and Vulnerabilities in Your Organization



Step #1 NetAcad.com Get Trained



Step #2 Cisco U. and Cisco CTF Platform Assess Your Offensive Sec Skills



Step #3 Your Resume Update Your Professional Profile



- Real-World Challenges and Hands-on Expertise
- Themed Catch-the-Flag Challenges for Current Skill Relevance

- Cost-Effective
- Theme Associated Digital Badges
- Industry-Recognized Certificate and Marketability

CISCO Live!

A Global Shortage of Cybersecurity Professionals

- 4 million jobs are unfilled in cybersecurity globally*

Growth of Core Offensive Security Roles

- Penetration tester employment is projected to grow 31% from 2019 to 2029**

Employers Moving Toward Skills-based Hiring

- This trend gives cybersecurity certificate holders more opportunities to demonstrate their skills***
- 76% of employers use some skills-based hiring to find new talent****

Offensive Security as a Honeytrap for New Learners

- In its first year, the Ethical Hacker course has become the fastest-growing course at Cisco Networking Academy

* WEF 2024 Talent Shortage Report

** U.S. Bureau of Labor Statistics

*** Lightcast 2022 report

**** TestGorilla 2022 State of Skills-Based Hiring

Operation Technologies

CISCO *Live!*



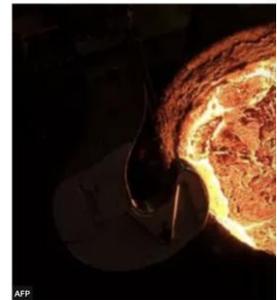
NEWS

Home Israel-Gaza war War in Ukraine Climate Video World UK Business Tech Science

Tech

Hack attack causes 'massive damage' at steel works

© 22 December 2014



The hack attack led to failures in plant equipment and forced

A blast furnace at a German steel mill suffered "mass a cyber attack on the plant's network, says a report.

Home / 2024 / May / Ukraine blackouts caused by malware attacks warn against evolving cybersecurity threats to the physical world

Ukraine blackouts caused by malware attacks warn against evolving cybersecurity threats to the physical world

May 17, 2024
By Emily Cerf

On a cold winter night in 2016, Ukrainians experienced the first-ever known blackout caused by malicious code (malware) designed to autonomously attack the power grid. One-fifth of Kyiv's citizens were plunged into darkness as attackers used malware to target the capital city's power grid. Six years later, in the early months of the ongoing Russia-Ukraine war, a second attack attempted to combine kinetic and cyber attacks to take down Ukraine's power grid.

Malware attacks against physical infrastructure have long been a looming threat in the realm of cybersecurity, but these two in Ukraine were the



Power lines in Ukrai

COMMENTARY & INSIGHTS

11 recent cyber attacks on the water and wastewater sector

By James 13 October 2024



SHARE THIS STORY:

Attacks And Vulnerabilities Control Device Security Critical Infrastructure News Utilities: Energy & Power, Water, Waste

Hackers target Arkansas City water treatment plant, prompting federal investigation

SEPTEMBER 24, 2024



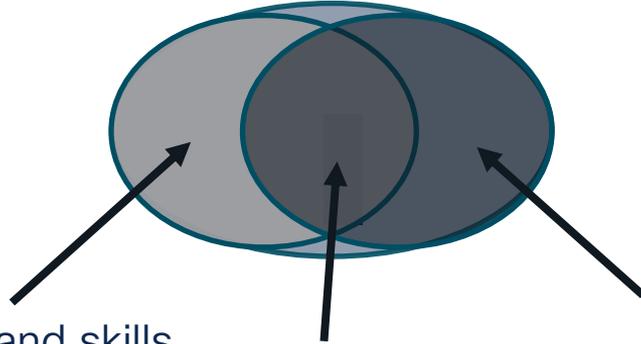
Cybersecurity of Critical Infrastructure

Networking and Cybersecurity
Entry Level Skills

IT Persona



Topics and skills
only relevant for
IT Networks



Common Topics
and skills but within
a different Context

Topics and Skills
only relevant for
OT Networks

OT Persona



2 Advisory Boards: Manufacturing and Energy



New Curriculum: Securely Connect Operation Technology

Learning Goals

Essential Industrial networking and cybersecurity skills for entry-level OT Jobs in two verticals: manufacturing and utility power.

Target Audience:

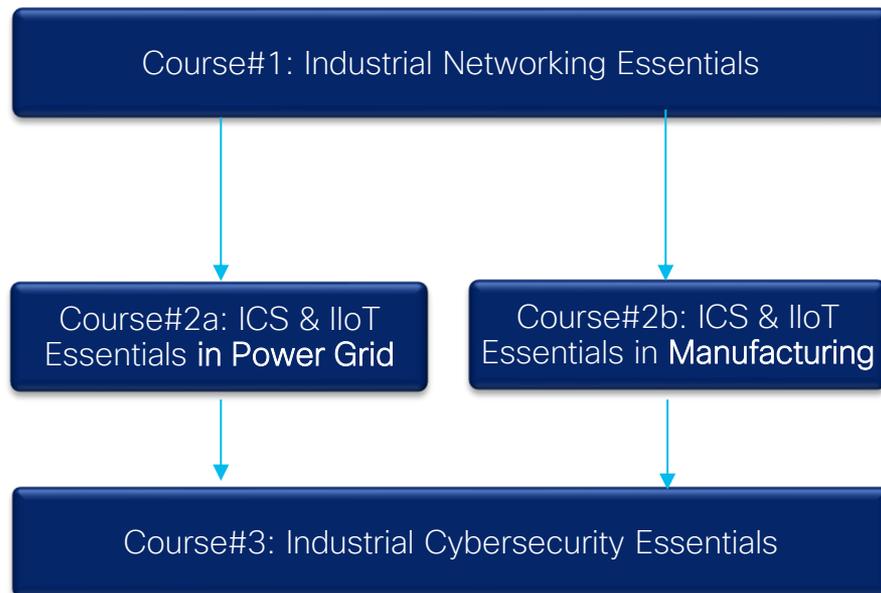
Students in secondary and post-secondary educational Institutions in the two verticals: manufacturing, utility power

Value proposition

Complement the learner vertical-specific skills with Industrial Networking and Cybersecurity skills critical for operating modern converged OT infrastructures

Format:

Pathway of short instructor led courses on NetAcad converged platform.



- A Career Path of 3 courses to cover in total about a semester (70h)
- Expected from beginning of summer 2025.
- Instructors can preview the alpha courses on the platform today

Online Curriculum and Packet Tracer 9.0



Module 1: Networking Concepts for Operations Technologies

Explain components of a hierarchical network design.

Scroll down and select 'Introduction' to begin.

1.0. Introduction +

0%

Introduce the contents of the module.

1.1. IT and OT -

0%

Explain the need for a synthesis of the Information Technologies and Operational Technologies functions in the Industrial Internet of Things.

- ▶ 1.1.1 Video - Evolution of Manufacturing
- ▶ 1.1.2 Practice - Industrial Revolutions
- ▶ 1.1.3 Pillars of Industry 4.0
- ▶ 1.1.4 Convergence of IT and OT Manufacturing



Latching with PLC & Ladder Logic

In this lab, you'll make a light latch. When you press the "start", the light comes on. It'll stay lit even if you let go. Only pressing "stop" turns it off.

Steps:

1. Install "PT Industrial Automation App" using the "User Apps Manager" on the Engineering Workstation Desktop.
2. Open the app. Choose Program PLC > Ladder Logic Editor.
3. Set up this tag table:

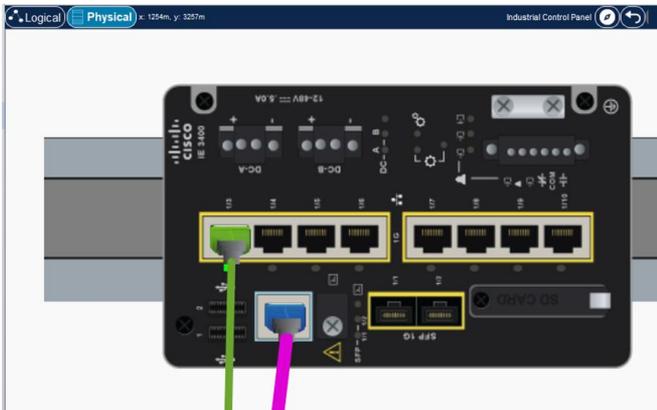
Name	Address	IO Direction	Type
start	D0	input	bool
stop	D1	input	bool
lamp	D2	output	bool

4. Add components to the Editor so it looks like:

5. To send your ladder logic to the PLC, type "1.1.1.2" for the IP and hit "Download Program".

Now, pressing "start" lights up the lamp. It stays on till you press "stop".

ALT+mouseclick to press the buttons





We are at an inflection point

AI in the Cisco Networking Academy

Curricula and Learning Experiences and future of ICT Skills

Curriculum

WHAT to learn

- Foundational self-paced AI courses and pathway for independent learners
- Foundational semester-long instructor-led AI Courses for educational institutions “AI Essentials”

Learning Experience

HOW to teach and learn

- AI based Adaptive Assessment to assess learner proficiency
- Conversational Project Based Learning with integrated Tutor

Research

JOBs and SKILLs evolution

- Industry level partnership consortium
- 48 jobs analyzed with a new Job Impact Methodology

Introduction to Modern AI

CISCO *Live!*



Introduction to Modern AI

What you will be able to do

Conversational, Project-based Learning

CISCO *Live!*



Learning Science

Engaging and
Effective Learning
Experiences

Generative AI

Interactivity in Browser



Chapter 3: Coding for Answers

Let's harness the power of python to answer questions about data! This chapter focuses on the foundational concepts of the Pandas library. This includes querying DataFrames, performing calculations, combining datasets and aggregating results.

Libraries: Python, Pandas, Matplotlib

Skills: Basic Pandas and Python

[View Projects](#)

One More Thing

CISCO *Live!*



Professional Skills Becoming More Important

“It’s your humanity that will make you all the more valuable in the age of AI.”

Mark C. Perna,
Forbes, September 9, 2024



BEGINNER

Course | Self-paced, Instructor-led

Engaging Stakeholders for Success

In this course, learners gain the insights and tools to identify, prioritize, and engage with stakeholders for success.

3 Hours Free



BEGINNER

Course | Self-paced, Instructor-led

Creating Compelling Reports

Learn how to tell a great story and communicate important information to flourish in your professional career.

4 Hours Free



INTERMEDIATE

EDG

Course | Self-paced, Instructor-led

English for IT 1

A course that teaches the English language in a specific IT context at the “B2” proficiency level which is a basic requirement for employment use.

50 Hours Free



INTERMEDIATE

EDG

Course | Self-paced, Instructor-led

English for IT 2

A course that teaches the English language in a specific IT context at the “B2” proficiency level which is a basic requirement for employment use.

50 Hours Free



BEGINNER

Course | Self-paced, Instructor-led

Discovering Entrepreneurship

Build entrepreneurial skills and develop a solution-oriented approach to problem solving through real-world examples and interactive branching activities.

20 Hours Free



BEGINNER

Course | Self-paced, Instructor-led

Launching a Business Venture

The second in a 3-course series on entrepreneurship designed to help you advance a business idea from planning to launch.

20 Hours Free



BEGINNER

Course | Self-paced, Instructor-led

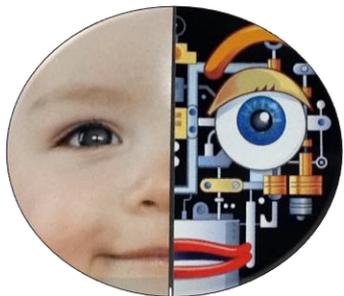
Managing a Business Venture

The third in a 3-part entrepreneurship series designed to help you learn business strategy, operations, networking and risk management.

20 Hours Free



Thank you

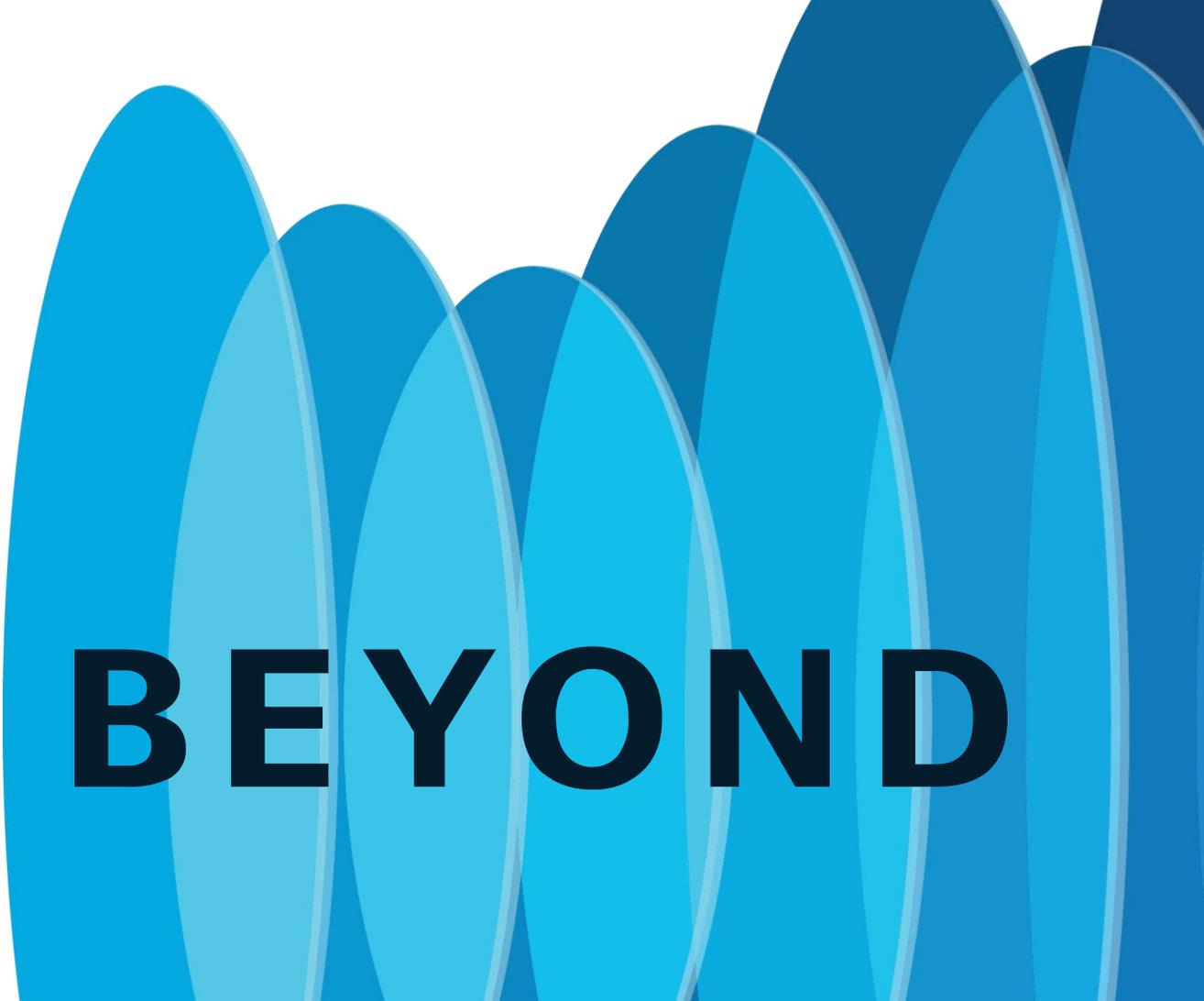


CISCO *Live!*



CISCO *Live!*

GO BEYOND

A series of overlapping, vertically-oriented ovals in various shades of blue, ranging from light to dark, positioned on the right side of the slide.

Agenda

- 1000 Brief Welcome
- 1005 Shaping the future: platform and product developments
- **1050 Thoughts on: feeding Europe's talent pipeline**
- 1110 AI and the future of ICT skills
- 1155 Morning wrap up
- 1200 Lunch & conference visit



Building an inclusive future in digitization for Europe and beyond

Successes, challenges, and where we can work together

Armand Leblois
Regional Manager Europe, Cisco Networking Academy





Networking
Academy
Partner Conference
2024, Paris

Donner
le pou...
de part...

News from the region





Some European stats for 2024

+9 500 instructors +3 900 Academies

725 900 students overall

+390 000 instructor led



250K

Successful completion of 3 year cyber training goal...

...in just 18 months!



553 700 students every year

3.2 million students since inception



7 607 educators



3 129 institutions

In the European Union:

European CyberRace 2024



Become a Cybersecurity Champion

McLaren



Launched on October 17, this was the second edition of our competition

Officially sponsored by McLaren Formula 1 Racing

Creation of a special McLaren Learning Collection: for this competition, the Networking Academy will launch a unique McLaren branded learning collection around the digital transformation of a specialized topic.

This collection will be at the center of the learning experience and will focus on McLaren's digitization strategy as a best practice.

Remember this presentation from last year?!

Who am I?

Why am I here?

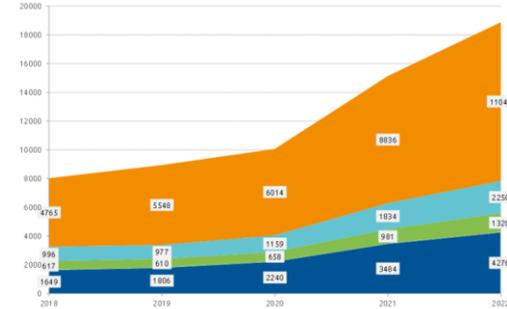


- Max Funcke
- IT Security Teacher since 20
- Cisco Instructor since 2018
- Became a Cisco Instructor while still a student
- European CyberCup 2023
- Participating
- Results
- The Future

Learn-A-Thon: Digital skills for all

There is an ever-growing market with jobs that require some form of cybersecurity awareness / knowledge

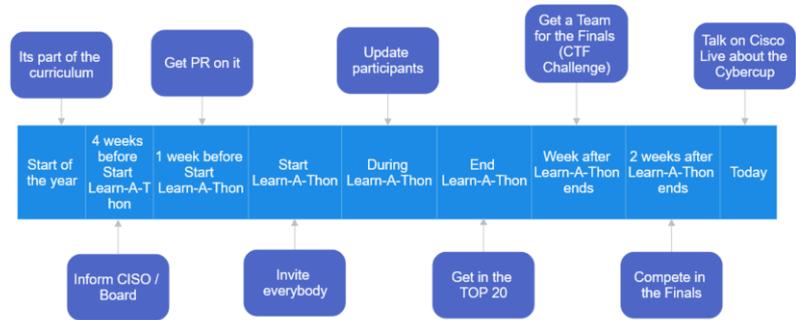
The graph on the right is showing the number of job vacancies that require cybersecurity knowledge in the Netherlands



Orange = Entry level
Green = Intermediate
Light blue = Junior
Dark blue = Cybersecurity Specialist

cisco Live!

With everyone on board, time to shift gears. In an ideal situation:



cisco Live!

European CyberRace 2024

Pre qualifier (the top 20 academies progress to the final round)

9	НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ БІОРЕСУРСІВ І ПРИРОДООКРИСТУВАННЯ УКРАЇНИ, UKRAINE	Volodymyr Matiievskyi	8778
10	ROC MONDRIAAN, NETHERLANDS	Max Funcke	8771
11	ZESPOL SZKOL TECHNICZNYCH I OGOLNOKSZTALCACYCH IM. STEFANA BANACHA W JAROSLAWIU, POLAND	Piotr Drabik	8261

The Finals

European CyberRace 2024 – Capture the Flag Final

The screenshot displays a live broadcast interface for the European CyberRace 2024 – Capture the Flag Final. It features a performance graph, a team leaderboard, a most valuable player list, and two video call windows.

Performance of Top Scorers over Time

The graph shows the score progression of various teams from 08:05 to 08:15. The teams tracked include Marconi Hackers, #UoWM CyberSec4F1, Green Team, CyberLab, Dutch Cyber Crew TNG, CyberLions, Secure The Pit (STP), MajoranaTeam NumberWan, CyberULB, and Force.

Team Leaderboard

#	Team	Flags	Hints	Score
1	Dutch Cyber Crew TNG	8	2	181
2	Green Team	7	0	155
3	CyberLab	7	1	154
4	CyberUlli	6	0	150
5	Fenrir	6	0	144
6	Marconi Hackers	7	1	142
7	CyberLions	7	2	140
8	MajoranaTeam NumberWan	6	0	139
9	#UoWM.CyberSec4F1	6	2	138
10	Secure The Pit (STP)	6	2	125
11	Cultural Networking	3	0	70

Most Valuable Player

Player	Score
RustyRabiesL9	129
CharliePriestley	129
NVDespotov20	124
CHAOS_Controller	121
kernalpanic	120
4lex	120
Plamen	90
rizzquin	83
MarcoVisitillo	70
Pupesha	60
Gabbo	54
cauvmou	48
SoulAlex	40

Participants

- Armand Leblois**
Regional Manager Europe, Cisco Networking Academy
- Raquel Martinez**
Technical Manager Europe, Cisco Networking Academy

Video Player Controls

McLaren | CISCO
45:38 / 1:32:51

Final Score

European CyberRace 2024 – Capture the Flag Final

#	Team	Flags	Hints	Score
1	Green Team	29	0	660
2	Dutch Cyber Crew TNG	28	5	617
3	CyberLions	27	5	575
4	Marconi Hackers	26	8	520
5	Secure The Pit (STP)	23	7	464
6	CyberLab	19	6	369
7	MajoranaTeam NumberWan	19	5	365
8	Cultural Networking	14	5	271
9	CyberUll	12	3	240
10	#UoWM.CyberSec4F1	11	4	201
11	Fenrir	7	2	142
12	RootAccess	0	0	-10

Most Valuable Player	Score
CharliePriestley	434
4lex	408
CHAOS_Controller	370
NVDespotov20	312
Snakezz	272
kernelpanic	267
rizzquin	261
Olegani4	221
SilentForce	195
MarcoVisitilo	137
RustyRablesL9	137
Plameg	119
zsvladkov	112
MindSystem	106
lystoychev	105
SoulAlex	96
s0u734	74
PenroseMystery	72
Gabbo	71
Pupesha	68



Play (k)



A few thoughts on the European digitization journey



One region, different realities

People with basic digital skills



33%

Urban

v



20%

Rural



82%

Netherlands

v



27%

Romania

Women ICT specialists



29%

Romania

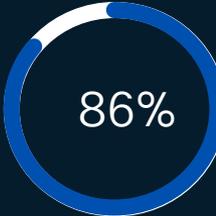
v



17%

Italy

Digitalisation of SMBs



86%

Finland

v



26%

Bulgaria

Europe's Digital Decade Goals

80%

of Europeans with
basic digital skills



90%

Of European SMEs with
basic digital intensity

11 million ICT specialists to find in the next 5 years

CISCO *Live!*

A deeper look at Europe's Cerberus

SMBs in Europe : 23 million companies (50%), 83 million employees (42%)

Digital Intensity



53.8%

71.6% of SMBs in Europe have either a **low** or **very low** level of Digital Intensity

CISCO Live!

(DII Index)

Inclusion and Diversity



1.8 million

Number of women that could potentially integrate jobs in Tech from untapped sources

(McKinsey report on gender in Tech in Europe)

Talent production



69%

% of ICT specialists with a tertiary degree (2.1 million)

(Eurostat)

The Cyber paradox in France

March 2024: France Travail 43 million user profiles

MX3 nutrition 36 million user records



A quick scan of the SMB environment:

61%

Of SMBs consider themselves underprepared

54%

Use external consultants to manage cyber risk

95%

Of employees use their personal mobile for work

96%

Do not anticipate hiring in Cyber in the next 12 months

DBA Act Enforcement in the Netherlands

A forced shift from in employment....

In December 2024, 21 000 freelance IT workers deregistered their business in the Netherlands

One direct impact: the return of in-house hiring.



• The formula for inclusive digital transformation



Basic general knowledge for all



Modern, adaptive curricula that accelerates talent generation



Accessible reskilling open to all, irrespective of age or background



Secret ingredient:



Skills-based hiring

We have the tools to change the conversation





Accelerate CCST Penetration in curricula

Stronger Value Prop for Educators with our new platform

Be the bridge to industry and opportunity: badges and certs

CISCO *Live!*



Targeted upskilling of existing employees

Leverage CCST pathways to pre-qualify reskillers

Partner, partner, partner





**ARE YOU
READY?**



Thank you

CISCO *Live!*

Agenda

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AI and the future of ICT skills

How to prepare for the transformation opportunity

Giuseppe Cinque, Principal Architect Learning at Cisco
@g5



LinkedIn

CISCO *Live!*



Agenda

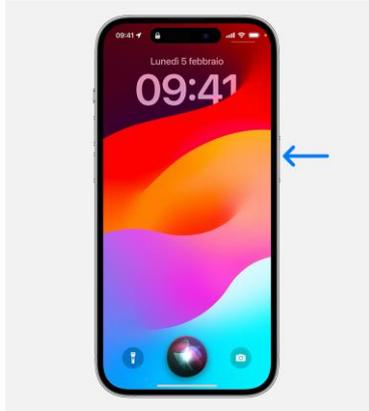
- | Time Traveling: past
- | How to Forecast AI Impact on Jobs
- | The AI Enabled ITC Workforce Consortium
- | Report “The AI Transformation Potential”
- | Netacad Jobs
- | Conclusion and next steps





Go back with your memory 30 months ago.

And think about an AI application/system that you use weekly?





GPT 3 Model Available via API since 2020

Language Models are Few-Shot Learners

Tom B. Brown*	Benjamin Mann*	Nick Ryder*	Melanie Subbiah*	
Jared Kaplan†	Prafulla Dhariwal	Arvind Neelakantan	Pranav Shyam	Girish Sastry
Amanda Askell	Sandhini Agarwal	Ariel Herbert-Voss	Gretchen Krueger	Tom Henighan
Rewon Child	Aditya Ramesh	Daniel M. Ziegler	Jeffrey Wu	Clemens Winter
Christopher Hesse	Mark Chen	Eric Sigler	Mateusz Litwin	Scott Gray
Benjamin Chess		Jack Clark	Christopher Berner	
Sam McCandlish	Alec Radford	Ilya Sutskever	Dario Amodei	

OpenAI





About one 12 month ago



Text
Generation
Open AI
ChatBot



Image Generation



GitHub
Copilot

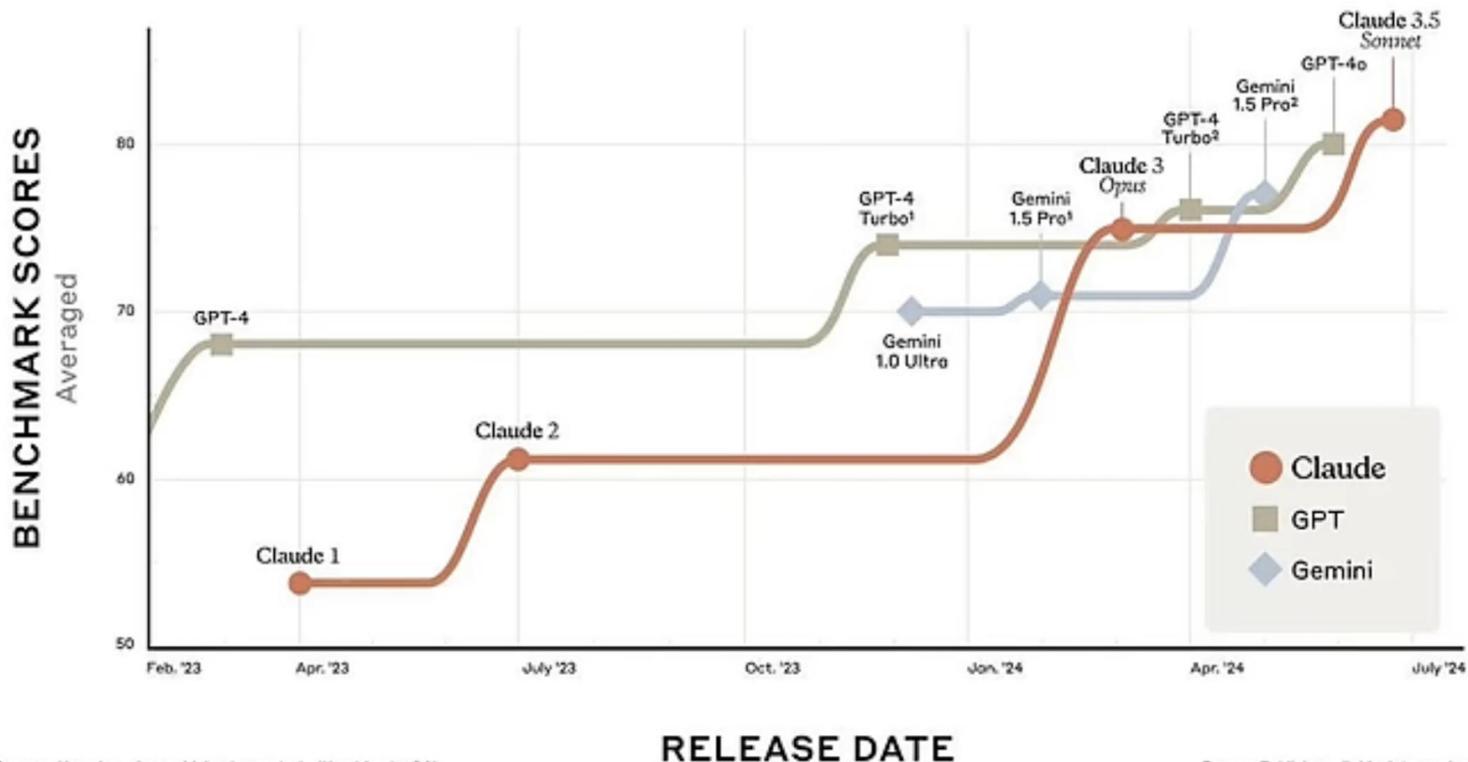
Code Generation



1. Open Models and Performance Convergence.



AI model release and capabilities timeline



Averaged benchmarks are highest reported without best-of-N: MMLU, GPQA, MATH, MGSM, DROP F1, HumanEval pass@1, MMMU, AI2D, ChartQA, DocQA, Mathvista

Source: Publicly available data; evaluation scores are the average of representative scores found online. 1 = Initial release; 2 = Second release

Open ~~Source~~ Weights Models

Introducing Llama 3.2

The open-source AI model you can fine-tune, distill and deploy anywhere is now available in more versions. Choose from 1B, 3B, 11B or 90B, or continue building with Llama 3.1

[Download models](#)

[Try Llama on Meta AI](#)

[Start building](#)

Lightweight

1B and 3B

Our lightweight and most efficient models you can run everywhere on mobile and on edge devices.

[Download models](#)

Multimodal

11B and 90B

Our open multimodal models that are flexible and can reason on high resolution images.

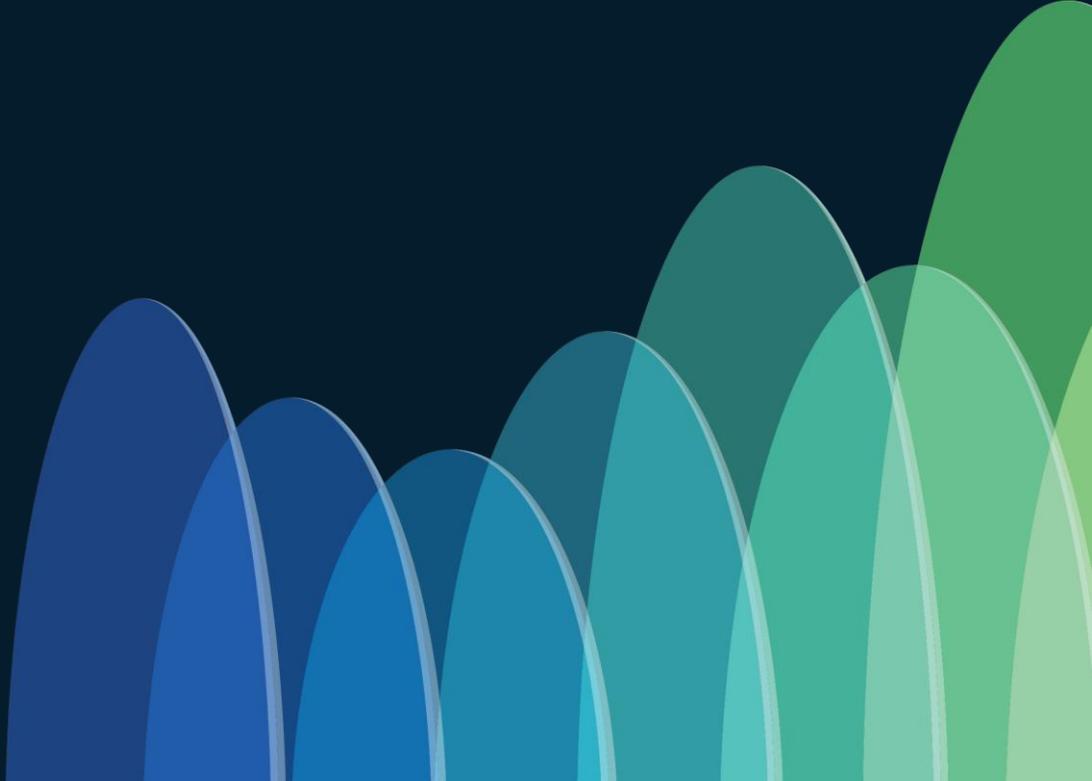
[Download models](#)

Download our flagship foundation **405B model**

[Download models](#)

Category Benchmark	Llama 3.1 405B	GPT-4 (0125)	GPT-4 Omni	Claude 3.5 Sonnet
General				
MMLU (0-shot, CoT)	88.6	85.4	88.7	88.3
MMLU PRO (5-shot, CoT)	73.3	64.8	74.0	77.0
IFEval	88.6	84.3	85.6	88.0
Code				
HumanEval (0-shot)	89.0	86.6	90.2	92.0
MBPP EvalPlus (base) (0-shot)	88.6	83.6	87.8	90.5
Math				
GSM8K (8-shot, CoT)	96.8	94.2	96.1	96.4 (0-shot)
MATH (0-shot, CoT)	73.8	64.5	76.6	71.1
Reasoning				
ARC Challenge (0-shot)	96.9	96.4	96.7	96.7
GPQA (0-shot, CoT)	51.1	41.4	53.6	59.4
Tool use				
BFCL	88.5	88.3	80.5	90.2

2. Regulations



European AI Act



Topics

European Parliament



[Scrutinising the Commission](#)

[How the EU works](#)

[Economy and budget](#)

[Ukraine](#)

[Migration](#)

[All topics](#)

[Topics](#) > [Digital](#) > [Artificial intelligence](#) > **EU AI Act: first regulation on artificial intelligence**

EU AI Act: first regulation on artificial intelligence

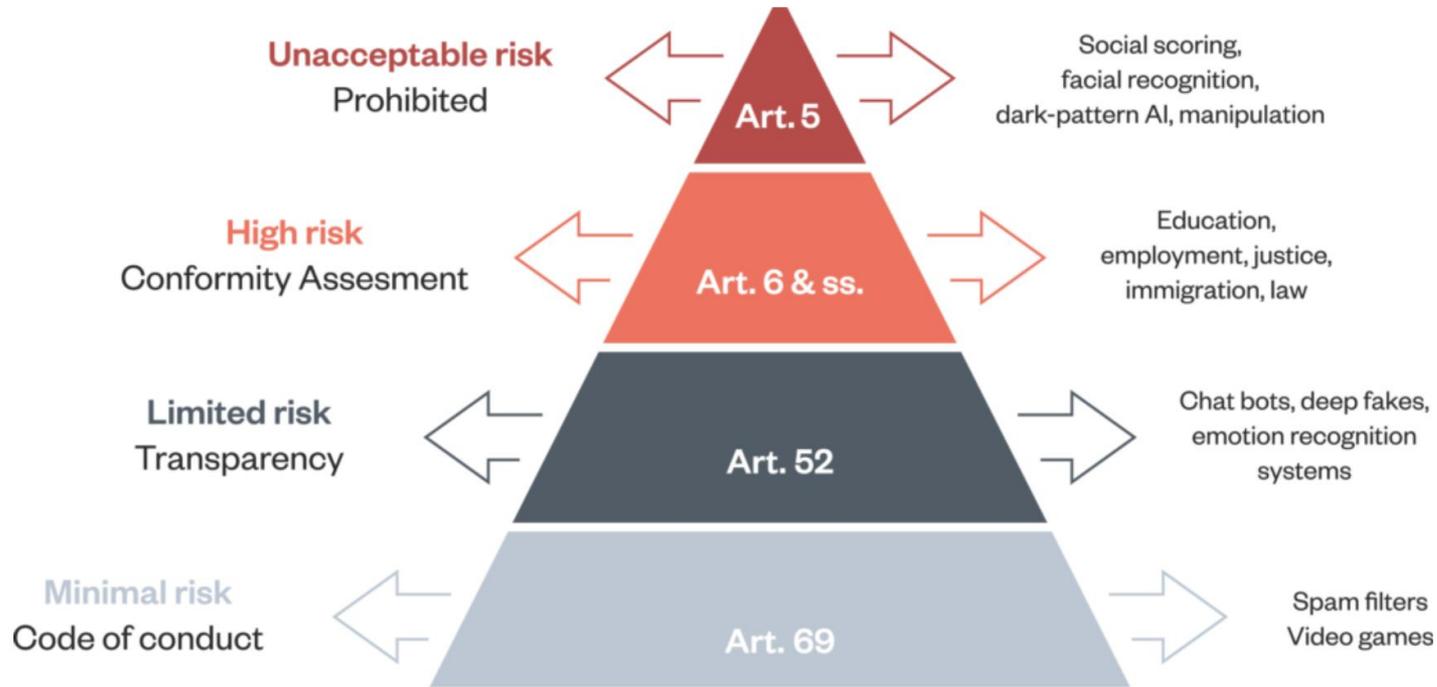
The use of artificial intelligence in the EU will be regulated by the AI Act, the world's first comprehensive AI law. Find out how it will protect you.

Published: 08-06-2023

Last updated: 18-06-2024 - 16:29

6 min read

EU AI Act Regulation: a Risk Based Approach



Source: Ada Lovelace Institute

Education and Training

Part of [Chapter I: General Provisions](#)

Article 4: AI literacy

Date of entry into force: **2 February 2025** According to: **Article 113(a)** Inherited from: **Chapter I**

See here for a [full implementation timeline](#).

SUMMARY +

Providers and deployers of AI systems shall take measures to ensure, to their best extent, a sufficient level of AI literacy of their staff and other persons dealing with the operation and use of AI systems on their behalf, taking into account their technical knowledge, experience, education and training and the context the AI systems are to be used in, and considering the persons or groups of persons on whom the AI systems are to be used.

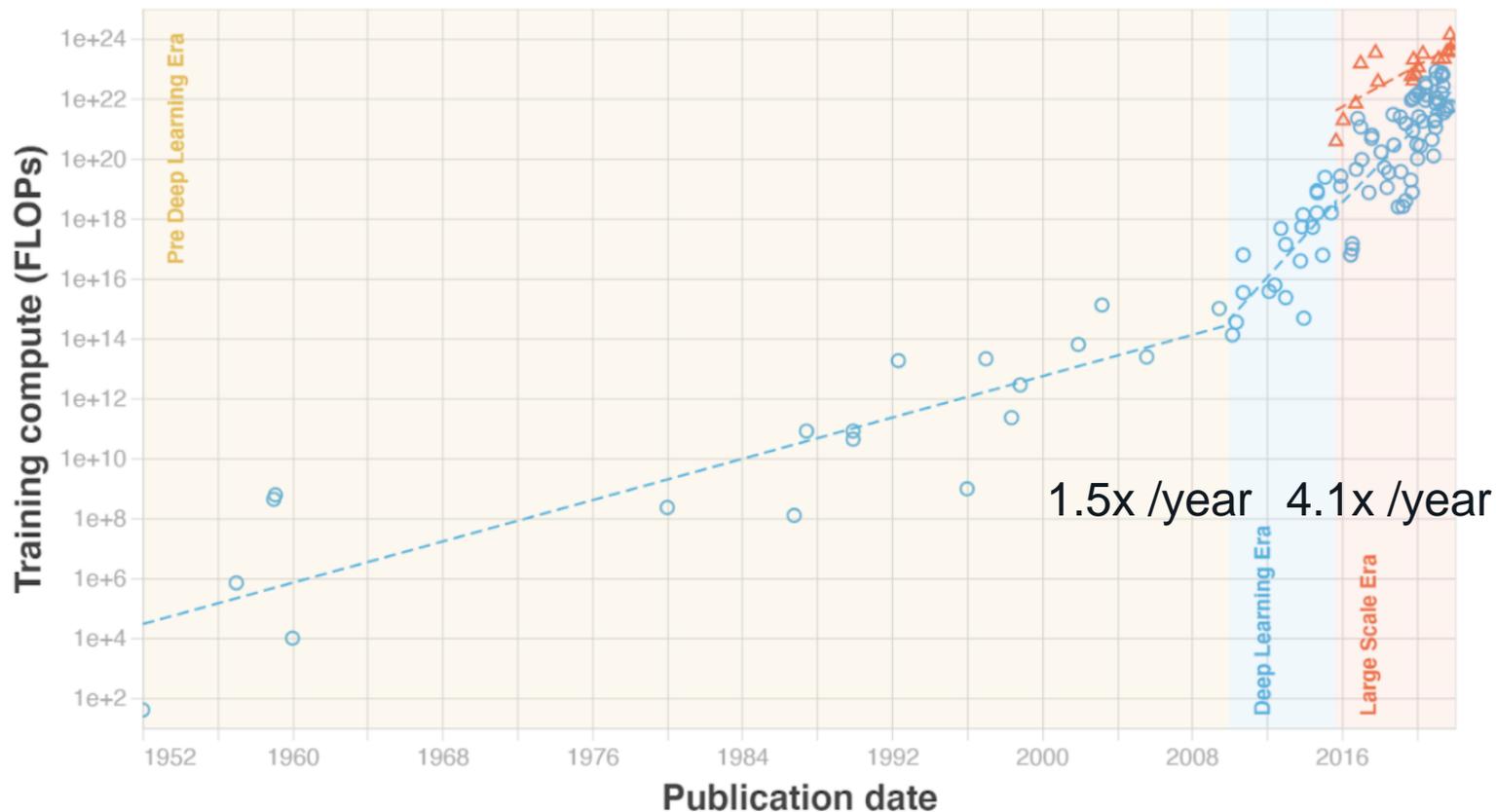
3.

Data Center is What You Need.

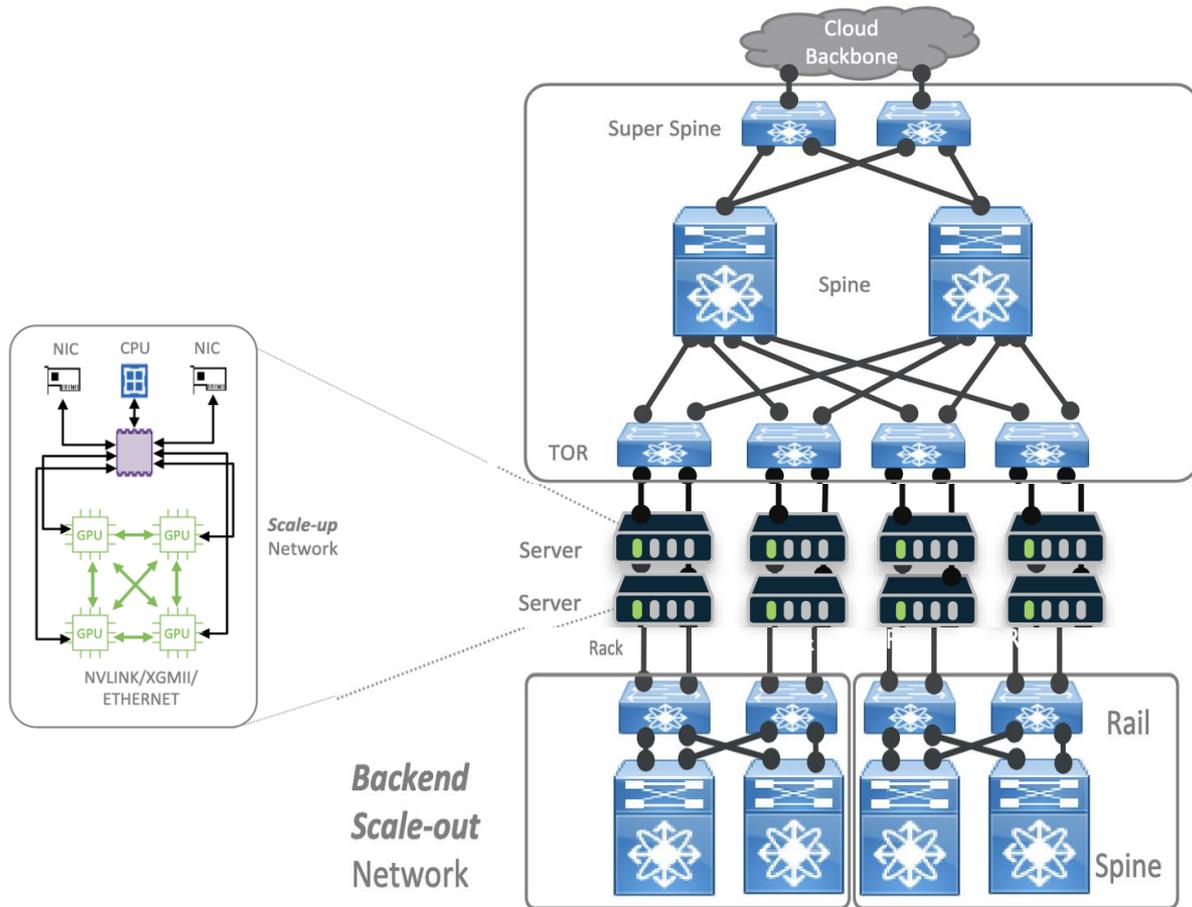


Training compute (FLOPs) of milestone Machine Learning systems over time

n = 118



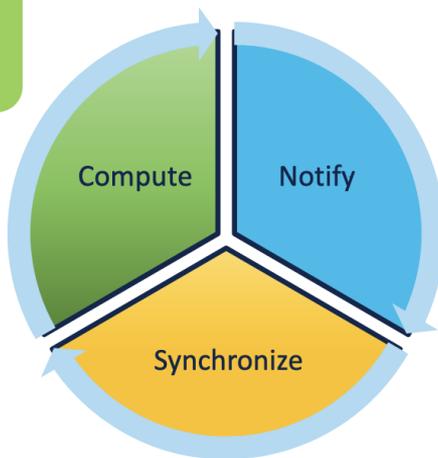
Data Center



AI Workload

GPU Execute Instructions

High Bandwidth capable GPUs can saturate network links



Send results of computation

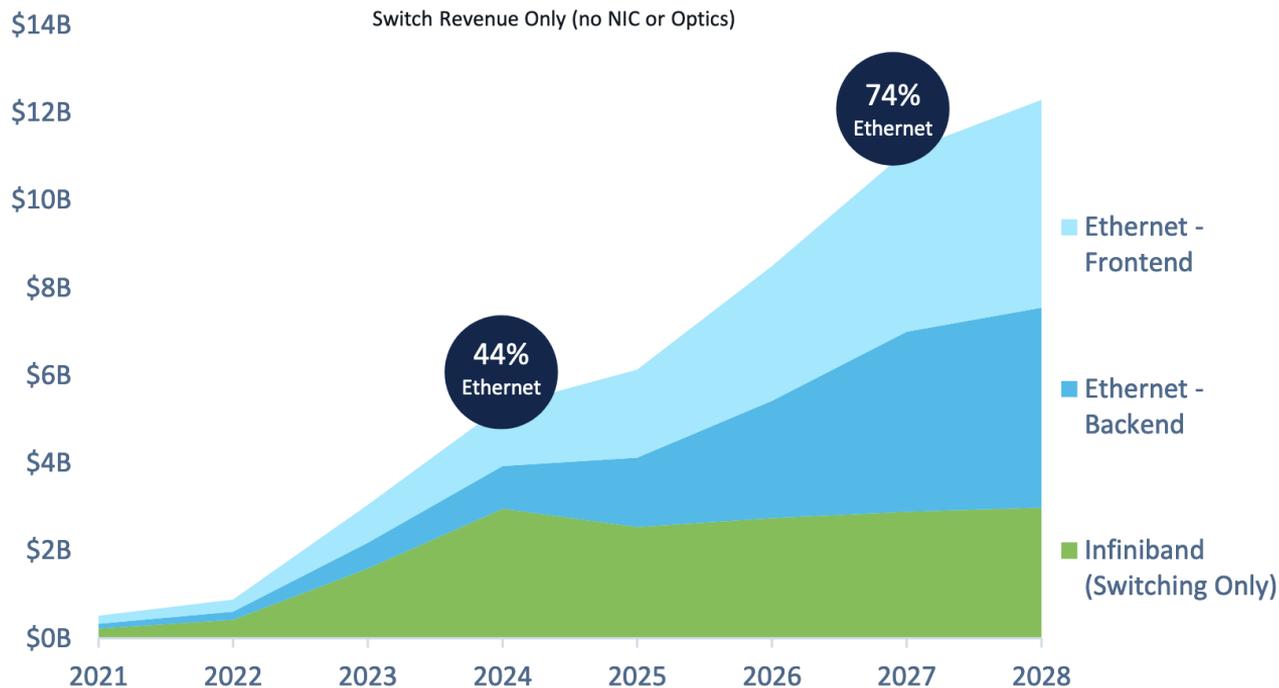
Different collective communication patterns
All Reduce (Aggregate/reduce everyone's data
and send to everyone)

Wait for all GPUs to complete

Synchronizes all GPUs
Compute stalls, waiting for the slowest path
Job Completion Time (JCT) influenced by the worst-case tail latency

Demand for Data Center Networking

Data Center Network Switching - AI/HPC By Technology



Source:



Data Center AI Networking Quarterly Market and Long-Term Forecast Report 4Q23 (March 6th, 2024)

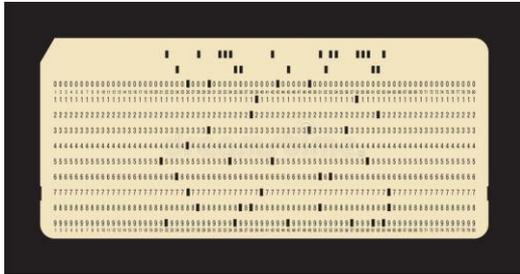
4. New Human Machine Interface

CISCO *Live!*

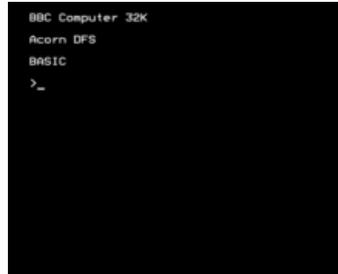


Human and Computer Interaction

Punched Card



Command Line



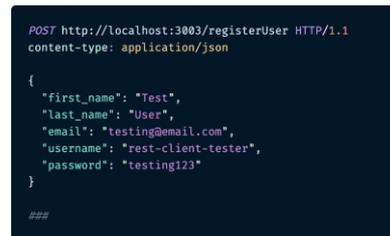
GUI: Simplify (Democratize)



Democratize & Automate

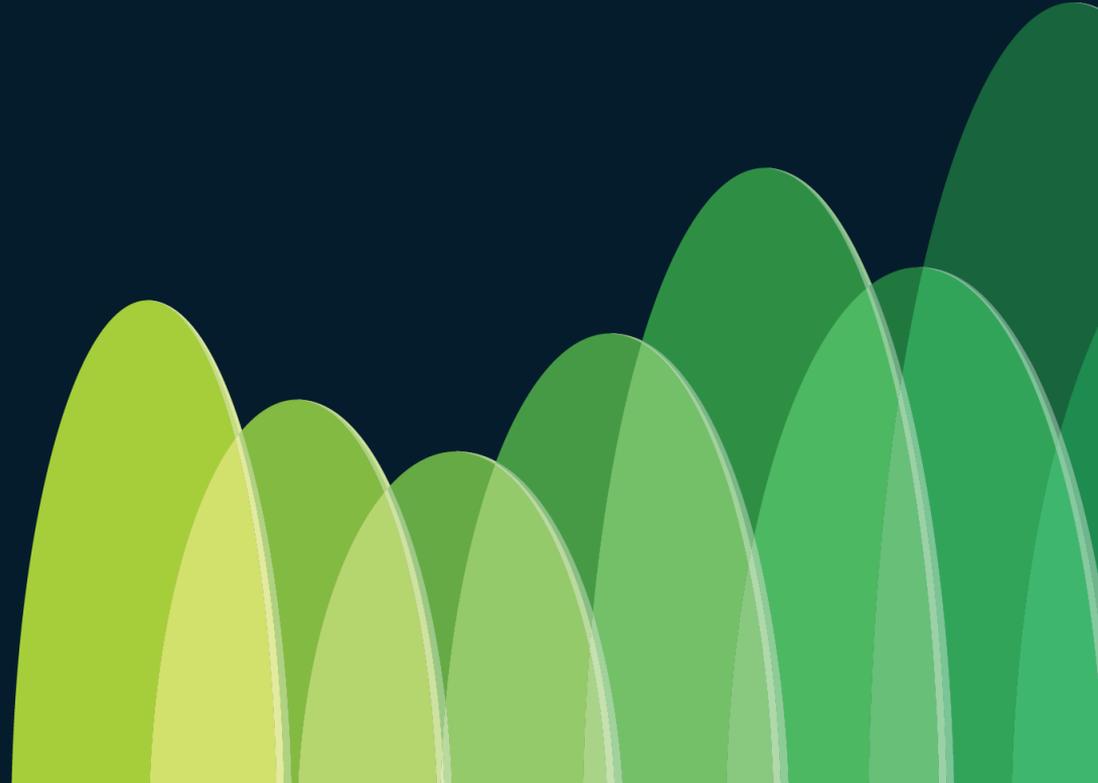
Natural Language Interfaces

API: Programmatic Approach (Automate)

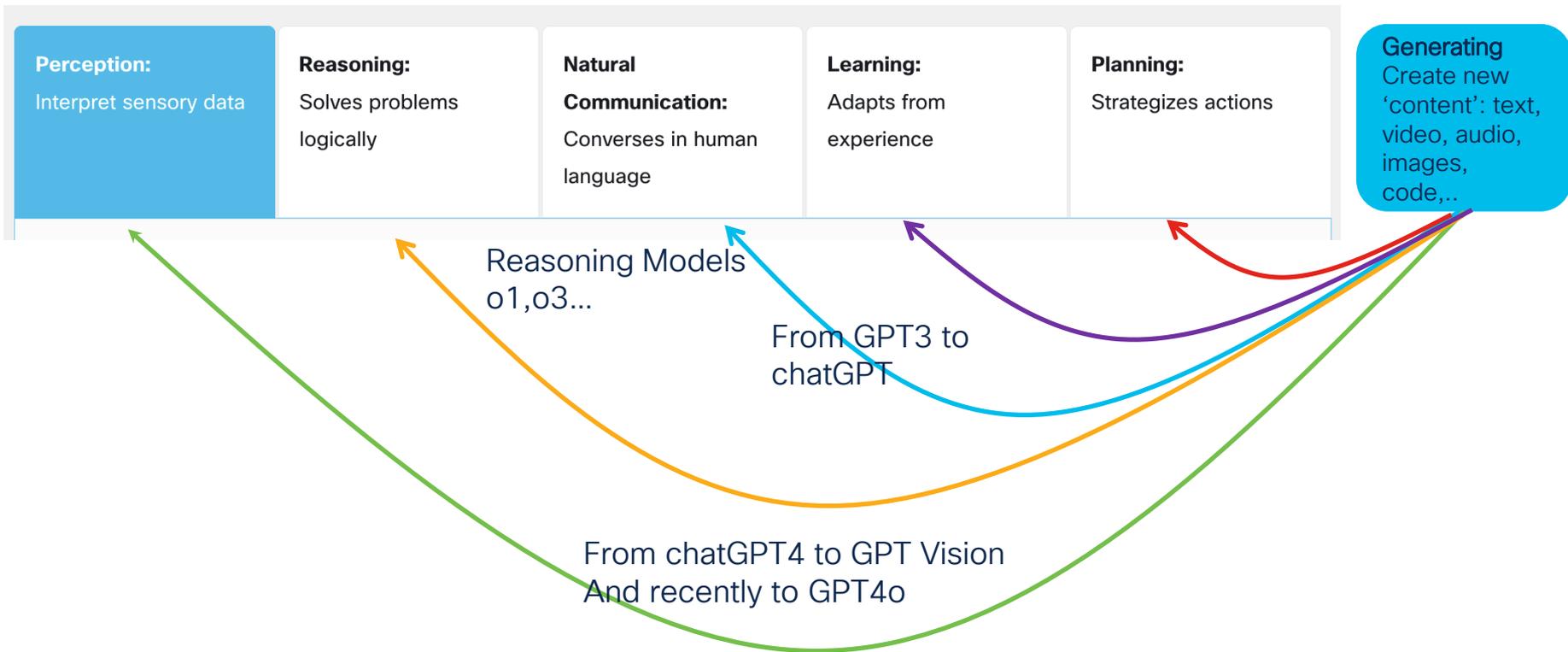


- Chat Bot
- Agents
- Smarm of Agents

5. Reasoning



Spectrum of AI Capabilities



The New Wave: From Imitation to Exploration

Garry Kasparov vs Deep Blue



02/1996

Lee Sedol vs AlphaGo



Sedol's reaction to Move 37. Photo: YouTube, CC BY-SA

03/2016

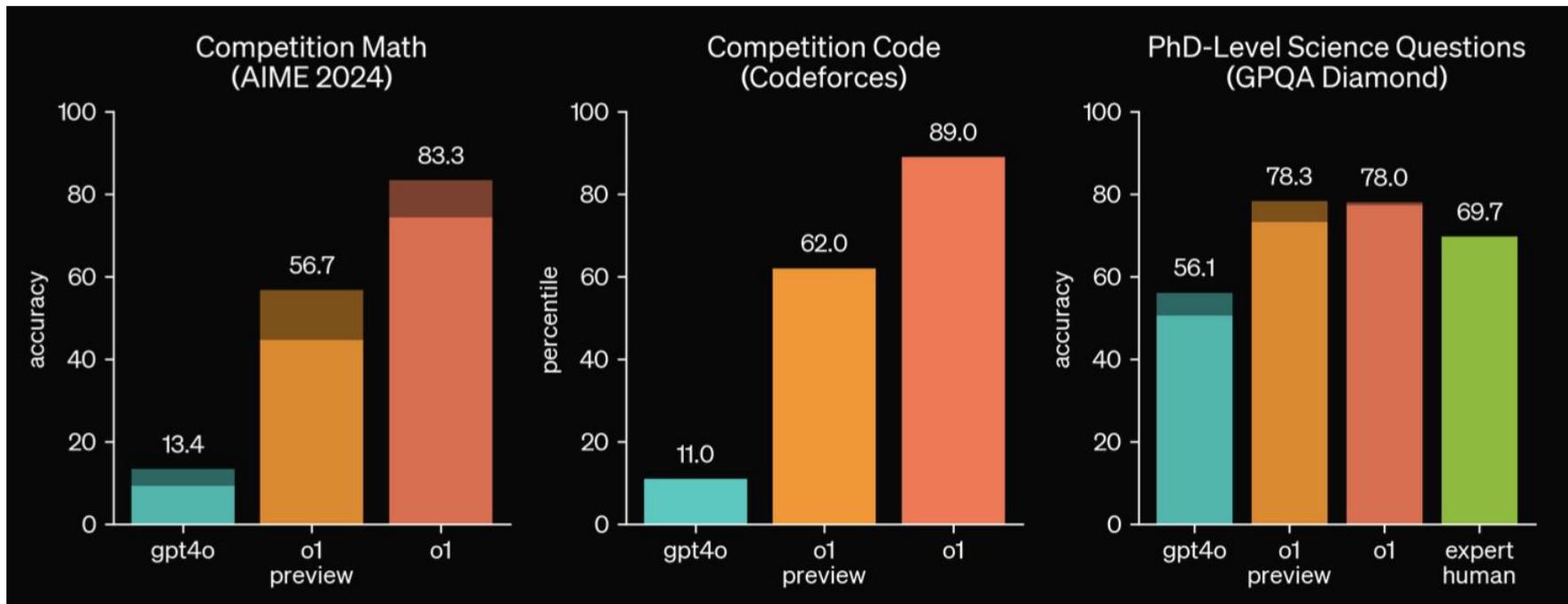
Ke Jie vs AlphaGo



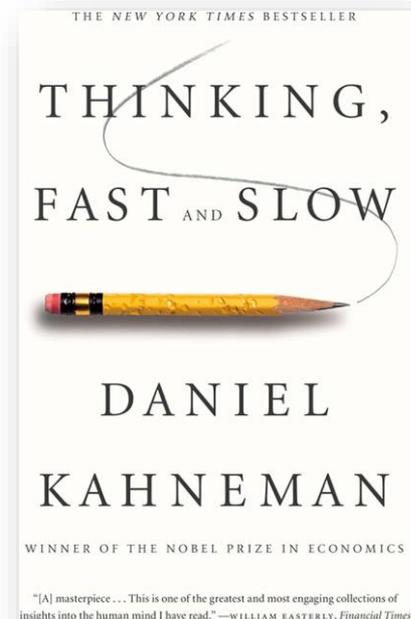
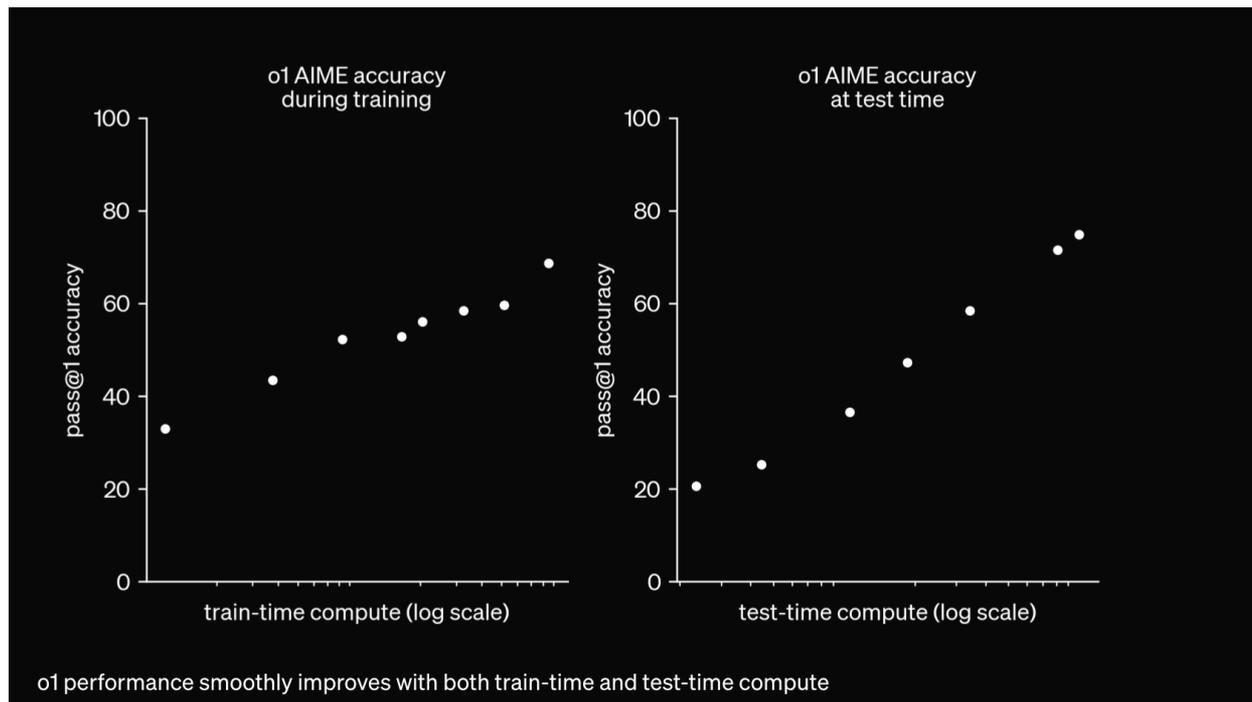
“Last year, I think the way AlphaGo played was pretty close to human beings, but today I think he plays like the God of Go”

05/2017

OpenAI o1 - A new "AI Species"



Giving the Model Time to Think



Black Hole Mass Measurements of Early-type Galaxies NGC 1380 and NGC 6861 through ALMA and HST Observations and Gas-dynamical Modeling*

Kyle M. Kabasares¹, Aaron J. Barth¹, David A. Buote¹, Benjamin D. Boizelle^{2,3}, Jonelle L. Walsh²,
Andrew J. Baker^{4,5}, Jeremy Darling⁶, Luis C. Ho^{7,8}, and Jonathan Cohn²

¹ Department of Physics and Astronomy, 4129 Frederick Reines Hall, University of California, Irvine, CA 92697-4575, USA; kkabasar@uci.edu

² George P. and Cynthia Woods Mitchell Institute for Fundamental Physics and Astronomy, 4242 TAMU, Texas A&M University, College Station, TX 77843-4242, USA

³ Department of Physics and Astronomy, 284 ESC, Brigham Young University, Provo, UT 84602, USA

⁴ Department of Physics and Astronomy, Rutgers, the State University of New Jersey, 136 Frelinghuysen Road, Piscataway, NJ 08854-8019, USA

⁵ Department of Physics and Astronomy, University of the Western Cape, Robert Sobukwe Road, Bellville 7535, South Africa

⁶ Center for Astrophysics and Space Astronomy, Department of Astrophysical and Planetary Sciences, University of Colorado, 389 UCB, Boulder, CO 80309-0389, USA

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⁸ Department of Astronomy, School of Physics, Peking University, Beijing 100871, People's Republic of China

Received 2022 April 1; revised 2022 May 30; accepted 2022 June 16; published 2022 August 1

Abstract

We present Atacama Large Millimeter/submillimeter Array (ALMA) Cycle 2 observations of the circumnuclear disks in two early-type galaxies, NGC 1380 and NGC 6861. The galaxies are highly inclined ($i \sim 75^\circ$), and the projected velocities of the molecular gas near the galaxy centers are $\sim 100 \text{ km s}^{-1}$ in NGC 1380 and $\sim 500 \text{ km s}^{-1}$ in NGC 6861. We fit thin disk dynamical models to the observations to constrain the masses of the central black holes (BHs). We created host galaxy models from Hubble Telescope images for the extended stellar mass distributions and incorporated a range of dust extinction values. For NGC 1380, our best-fit model yields $M_{\text{BH}} = 1.47 \times 10^8 M_\odot$ with a 1σ uncertainty of $\pm 0.2 \times 10^8 M_\odot$. For NGC 6861, the lack of dynamical tracers within the BH's sphere of influence due to a clumpy distribution precludes a precise measurement of M_{BH} . However, our model fits require a value of $(1-3) \times 10^9 M_\odot$ in NGC 6861 to reproduce the observations. The BH masses are generally consistent with predictions from local BH–host galaxy scaling relations. Systematic uncertainties associated with the host galaxy light and choice of host galaxy mass model dominate the error budget of both measurements.



The one year PhD work in 1 hour reaction



Applying Reinforcement Learning to Chip Design

nature

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Addendum | Published: 26 September 2024

Addendum: A graph placement methodology for fast chip design

[Anna Goldie](#) , [Azalia Mirhoseini](#) , [Mustafa Yazgan](#), [Joe Wenjie Jiang](#), [Ebrahim Songhori](#), [Shen Wang](#), [Young-Joon Lee](#), [Eric Johnson](#), [Omkar Pathak](#), [Azade Nova](#), [Jiwoo Pak](#), [Andy Tong](#), [Kavya Srinivasa](#), [William Hang](#), [Emre Tuncer](#), [Quoc V. Le](#), [James Laudon](#), [Richard Ho](#), [Roger Carpenter](#) & [Jeff Dean](#)

[Nature](#) **634**, E10–E11 (2024) | [Cite this article](#)

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 The [Original Article](#) was published on 09 June 2021

Addendum to: *Nature* <https://doi.org/10.1038/s41586-021-03544-w> Published online 9 June 2021

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Sections

References

[Pre-training](#)

[Training and computational resources](#)

[Initial placement](#)

[Benchmarks](#)

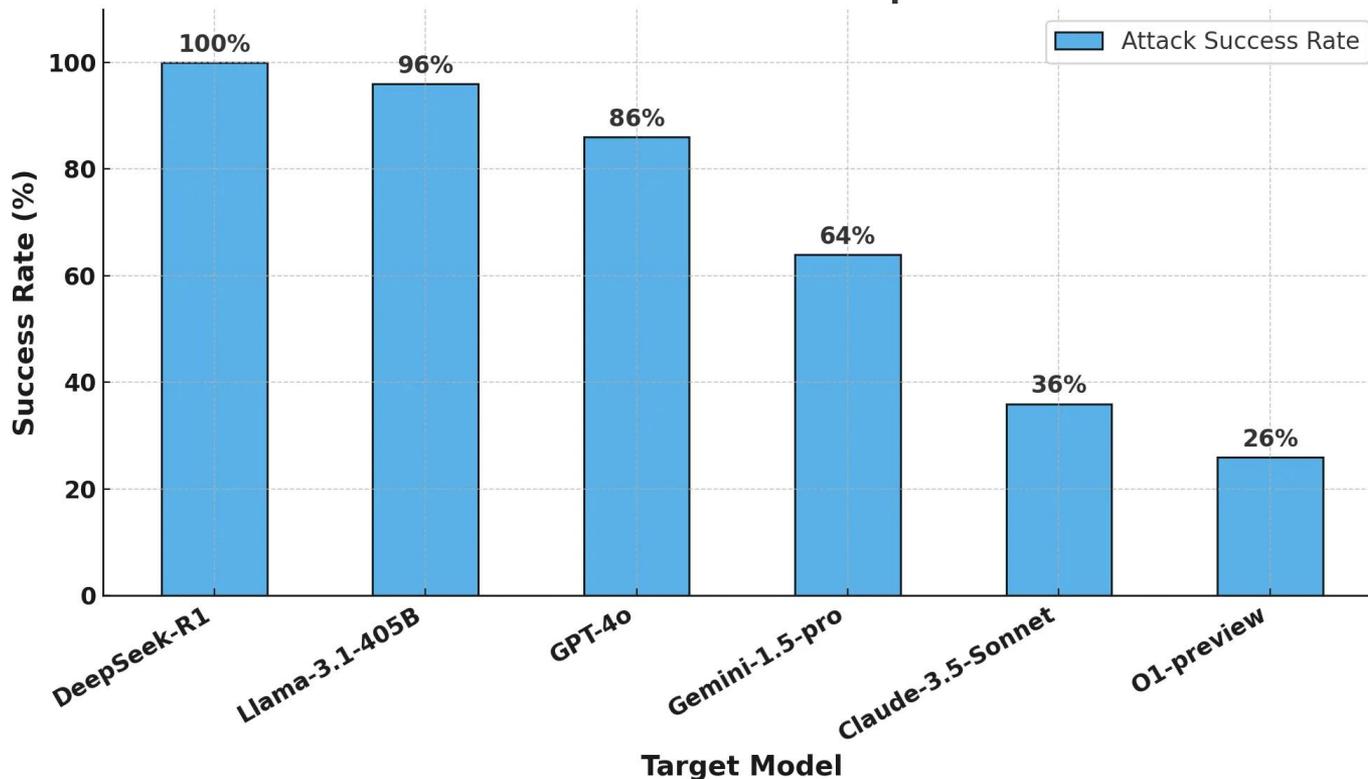
[Clarifications to the paper](#)

[Looking forward: AI methods transform the entire...](#)

[References](#)

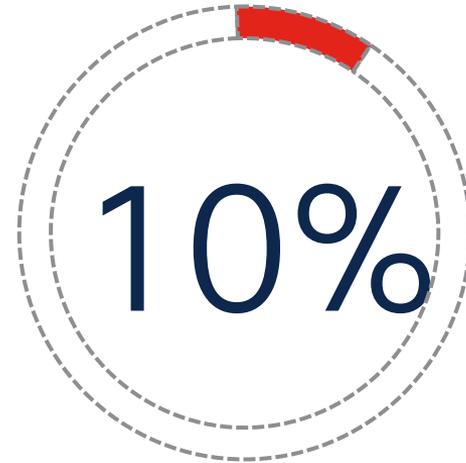
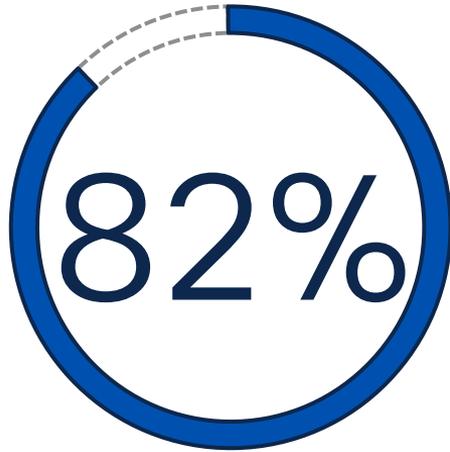
While very vulnerable to attacks

Attack Success Rates on Popular LLMs



Are we ready ?

Netacad Instructors opinion



While 82% of instructors recognize the importance of teaching AI/ML Skills, only 10% feels equipped to do so.

Instructor Opinion on the AI Impact on ICT Skills

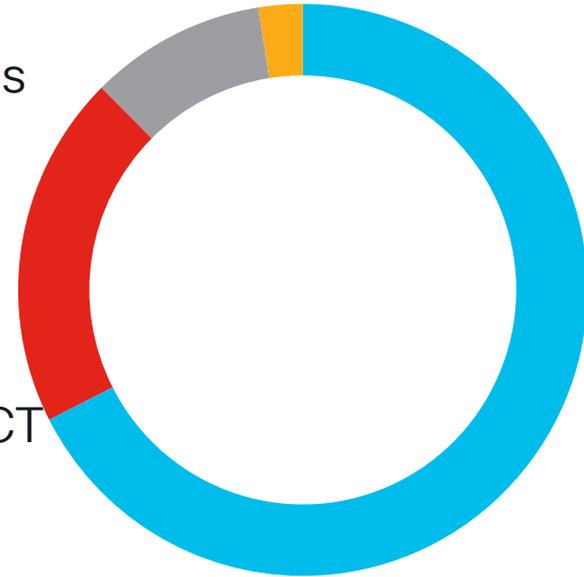
68% Thinks that AI/ML will CHANGE or AUGMENT ICT Jobs

20% Thinks AI/ML may replace SOME ICT jobs

10% Thinks AI/ML may replace MANY ICT jobs

2% Don't have an opinion yet

0% Thinks AI/ML will NOT have a significant impact on ICT Jobs



What's on everyone mind?

How will my job change, and how can I adapt to these changes?

How can we equip our students with the right competencies to succeed as AI enabled workforce?

Forecasting AI Impact on Jobs





The Washington Post | LIVE

Future of Work

The Impact of AI

Tuesday, July 11 at 2:00 p.m. ET / 7:00 p.m. PT



Alondra Nelson
Professor, School of Social Science, Institute for Advanced Study and Senior Fellow, Center for American Progress



Sal Khan
Founder & CEO, Khan Academy

BREAKING NEWS

Will AI chatbots replace human jobs in future? This is what ChatGPT said

We asked ChatGPT, developed by OpenAI, if AI chatbots can really replace human jobs, and it gave a very...
...ps, nor did it deny it.



EMPLOYMENT EVOLUTION

ARTIFICIAL INTELLIGENCE IS TAKING OVER THE WORKFORCE



GO MAYOR, BRANDON JOHNSON TO FACE PAUL VALLAS IN RUNOFF

NN LATEST HEADLINES

NEWSNATION

8:49 ET





Example from a Healthcare Job



Geoffrey Hinton
Nobel Laureate 2024
Turing Award 2016

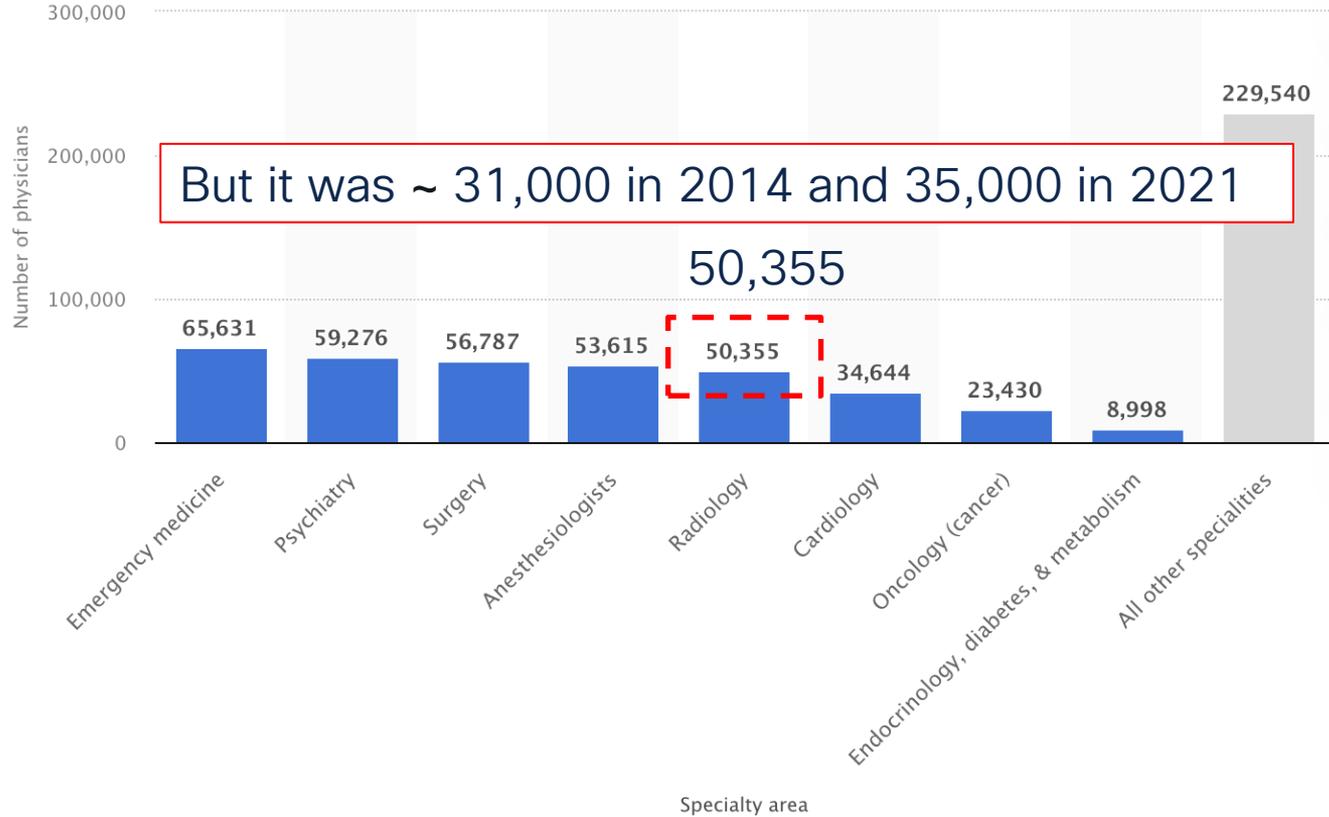


In 2016 Prof. G. Hinton declared:

“People should stop training radiologists now—it’s just completely obvious within 5 years deep learning is going to do better than radiologists.”



Number of active specialty physicians in the U.S. in 2024



Source: Statista.com





THE FUTURE OF EMPLOYMENT: HOW SUSCEPTIBLE ARE JOBS TO COMPUTERISATION?*

Carl Benedikt Frey[†] and Michael A. Osborne[‡]

September 17, 2013



McKinsey 2017



Felten 2020

GPTs are GPTs: An Early Look at the Labor Market Impact Potential of Large Language Models

Tyna Eloundou¹, Sam Manning^{1,2}, Pamela Mishkin*¹, and Daniel Rock³

¹OpenAI

²OpenResearch

³University of Pennsylvania

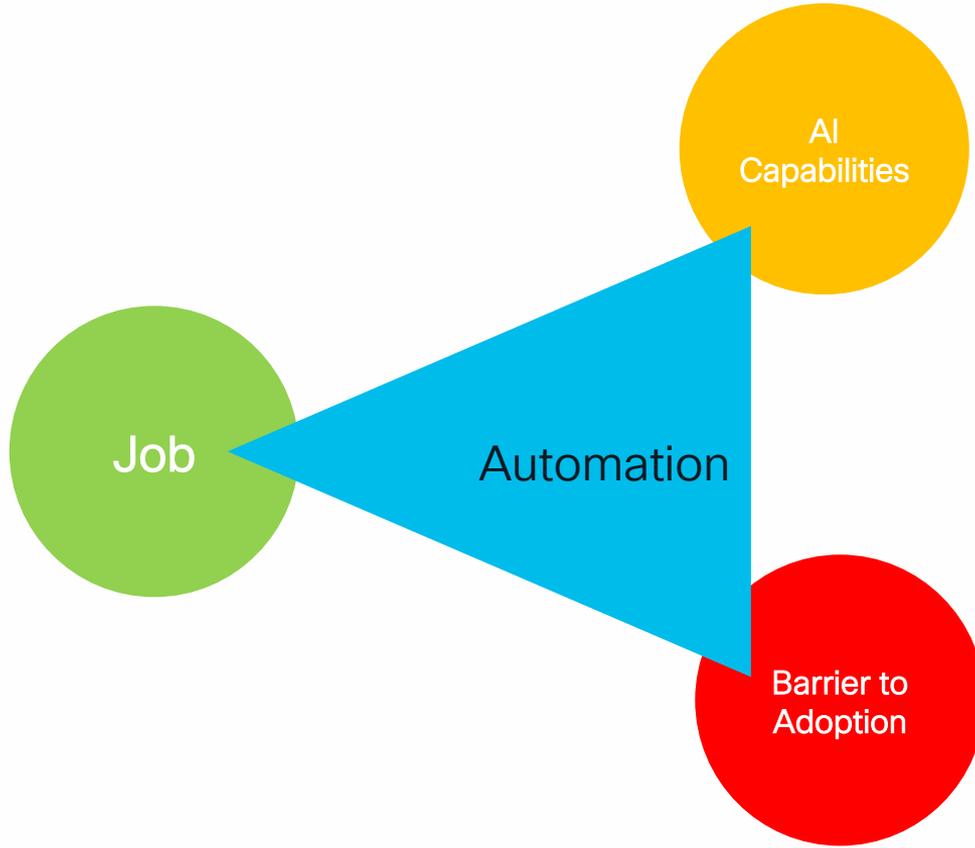
August 22, 2023

OpenAI 2023



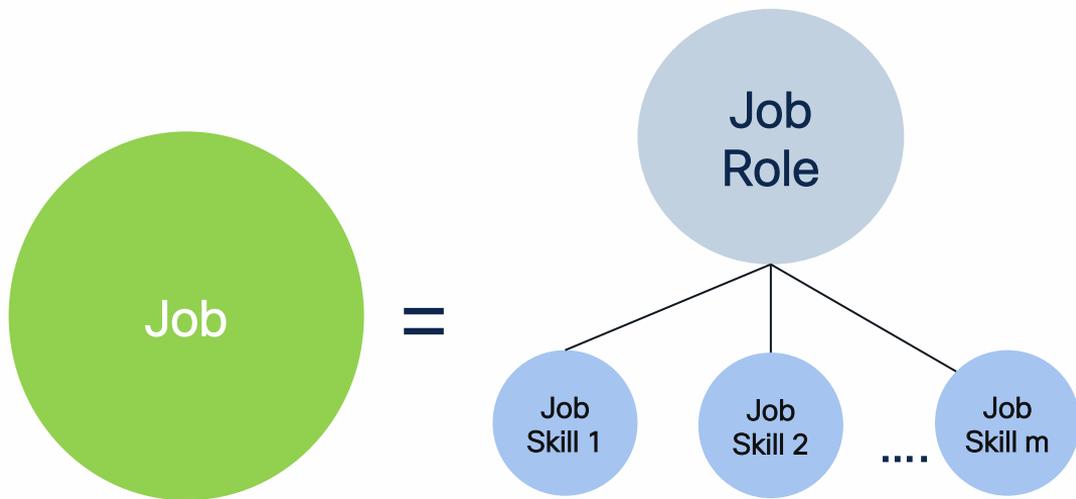
ILO 2023







Job as collection of Skills required

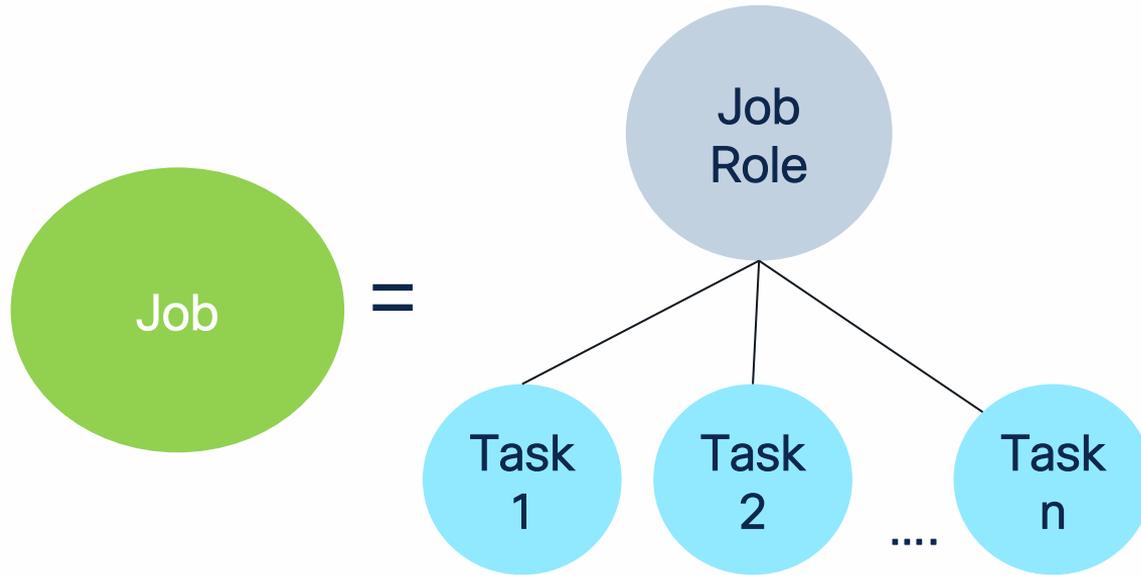


Analyze vacancies (job posts) against a skill taxonomy to extract the frequency of unique skills and their trending changes over time.

Job Skill: every "learnable thing" that employers are looking for, including knowledge, skills, and abilities (competencies).



Job as collection of Tasks



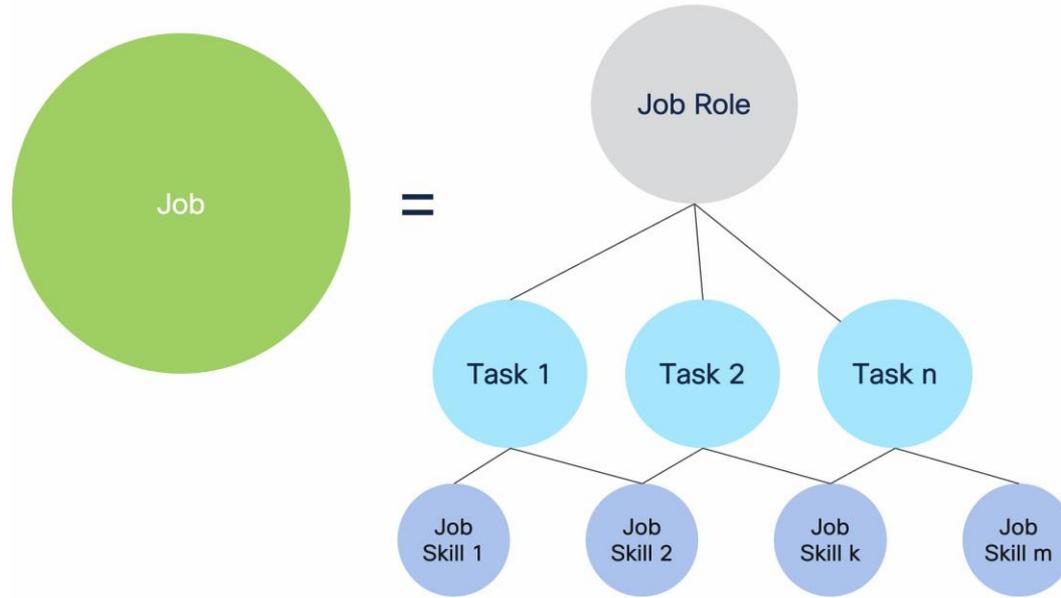
Job Task = An activity that is directed toward the achievement of organizational objective. What a worker does as part of the job.

International Database: ESCO, O*NET
Evaluated via Job Task Analysis:

- Survey
- Interviews
- Focus Groups (e.g. for the creation of Certifications)



Combined Approach: Job Transformation Canvas



Job Transformation Canvas (JTC)

Description

A role description outlines the duties and responsibilities expected of the person in role, encompassing tasks to be performed, areas of accountability, and a summary of necessary skills, knowledge, and attributes.

Principal Tasks

Include here the most important Tasks associated with the Job Role.

Principal Skills

Outline the prevalent skills necessary for the job role, covering both technical expertise and soft/professional skills vital for executing the role's primary tasks effectively

Executive Summary

This section provides an overarching narrative about how AI will change the job at a macro level.
Transformation Potential Label: *High, Medium, Low*

Key Insights

This section dives deeper into specific findings, supported by data and narratives. It serves to substantiate the claims made in the Impact Summary with evidence and detailed analysis, giving the reader concrete takeaways.

Skills Dynamics

This section presents how the specific job skills will be influenced by AI, identifying those that will increase in relevance, decrease in relevance, remain stable, and highlight newly emerging skills essential for future readiness.

Training Recommendations

In this section, educational opportunities will be organized and listed, noting whether they are complimentary or require payment. There are two macro categories of training recommendations: those that are specific to a job and those that are common across multiple jobs. Each offering will be tagged with the skills they target.

Job Specific

Detail targeted training tailored to address the AI's impact on the specific job role.

Common Foundation

Core training programs that equip individuals with versatile skills applicable to various job roles in adapting to the widespread influence of AI

JOB ROLE

TRANSFORMATIO

RECOMMENDATION

N





AI Enabled ICT Workforce Consortium

CISCO *Live!*



Consortium Participants

 accenture

 CISCO

 eightfold.ai

 Google

 IBM

 indeed®

 intel®

 Microsoft

 SAP

Consortium Advisors

American Federation of Labor
and Congress of Industrial
Organizations (AFL-CIO)

Chain5

Communications
Workers of America

DIGITALEUROPE

European Vocational
Training Association

Khan Academy

SMEunited

AI-ENABLED ICT WORKFORCE CONSORTIUM

VISION



Enable success
of the ICT workforce
in the AI era

MISSION

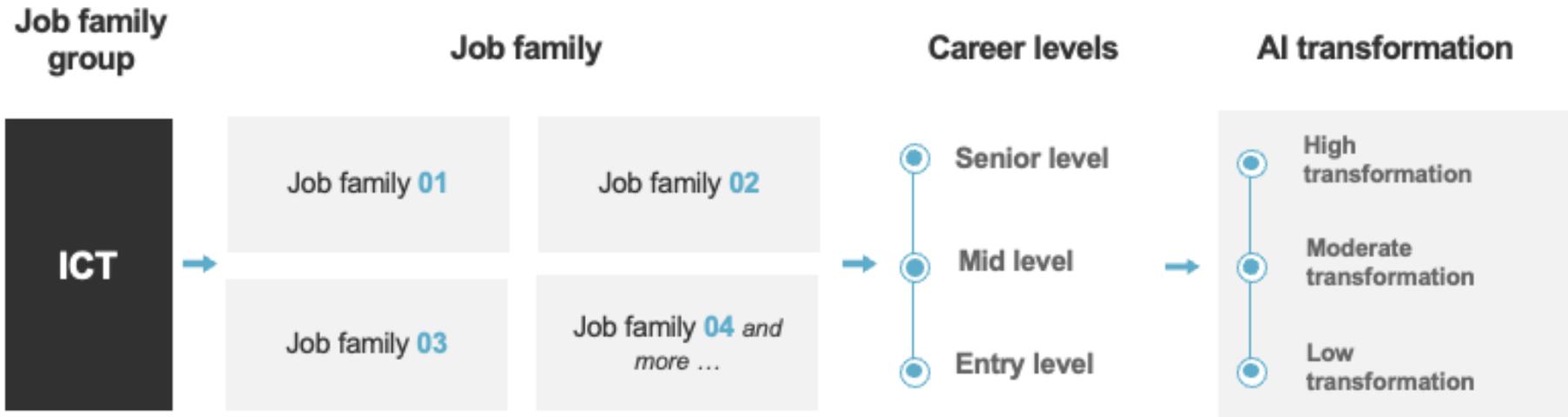


Create frameworks and provide actionable
insights to help workers and employers
leverage the transformational opportunity of
AI on ICT jobs

Consortium Report 195 pages containing the analysis for

7 Job family	Definition	47 Job role	
Business and Management	Managing the development, business analysis and marketing of technology products and services	<ul style="list-style-type: none"> • Business Analyst • Business Intelligence Analyst • Business Systems Analyst • Customer Service Representative 	<ul style="list-style-type: none"> • Digital Marketing Specialist • Product Manager • Project Manager • Senior Product Manager
Cybersecurity	Protecting systems, networks, and data from security breaches and cyberattacks	<ul style="list-style-type: none"> • Cybersecurity Analyst • Information Security Analyst • Information Security Specialist 	<ul style="list-style-type: none"> • Ethical Hacker • Soc Analyst Level 1
Data Science	Analyzing and interpreting large sets of data to extract valuable insights	<ul style="list-style-type: none"> • Data Analyst • Data Engineer 	<ul style="list-style-type: none"> • Data Scientist • Data Specialist
Design and User Experience	Designing the user experience and interface	<ul style="list-style-type: none"> • Design Engineer • Product Designer Engineer 	<ul style="list-style-type: none"> • UX Designer
Infrastructure and Operations	Managing and maintaining computer networks, including installing and configuring network equipment and troubleshooting network issues	<ul style="list-style-type: none"> • Database Administrator • Help Desk Analyst • IT Manager • IT Support Specialist • Network Administrator • Network and IT Automation Engineer 	<ul style="list-style-type: none"> • Network Support Technician • Senior Network Engineer • Systems Administrator • Systems Analyst
Software Development	Designing, coding, testing, and maintaining software applications and systems	<ul style="list-style-type: none"> • AI / ML Engineer • Application Developer • Back End Developer • Cloud Engineer • Front End Developer • Full Stack Developer • Java Developer • Principal Software Engineer • Python Developer • Software Architect 	<ul style="list-style-type: none"> • Software Developer • Senior Software Development Engineer • Software Engineer • Senior Software Engineer • Web Developer
Testing and Quality Assurance	Providing technical support and assistance to users	<ul style="list-style-type: none"> • Software Test and Debug • Technical Writer 	<ul style="list-style-type: none"> • Quality Assurance Analyst

Aggregate impact analysis per job family and



47 ICT Jobs selected for analysis

Specific cluster of related jobs within ICT sector requiring similar technical skills and functional knowledge.

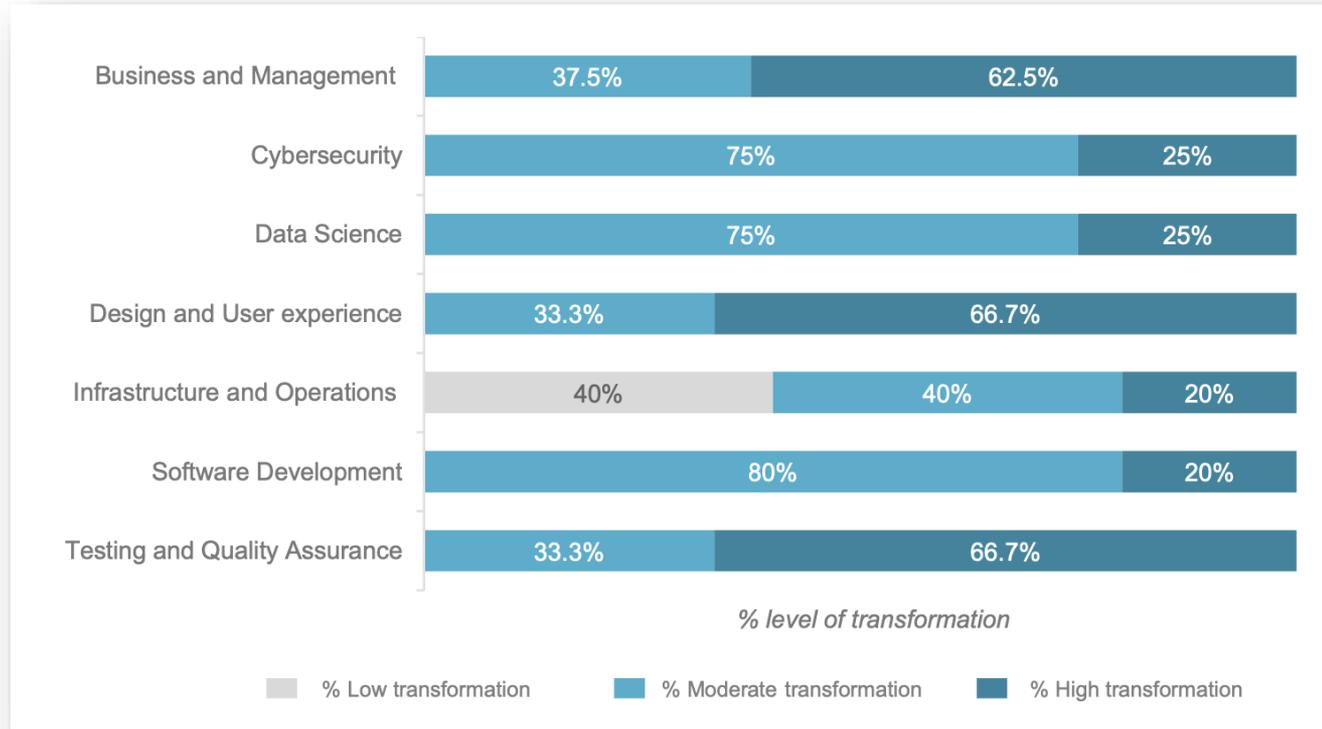
For e.g.: Business and Management, Data Science

Jobs within each group are further assessed based on the career level

AI Impact assessment is carried out on both job families and on the career levels

KEY FINDINGS

1) Every ICT job becomes an AI-influenced job with 92% of the jobs analyzed having **high or moderate** level of transformation expected.



<https://www.cisco.com/go/ai-workforce-consortium>

KEY FINDINGS

2) 37% of entry-level positions and 40% of mid-level positions of the analyzed jobs are expected to have **high levels** of transformation due to AI

3) **Common foundational** skills across ICT job roles for AI preparedness include:

AI literacy

- Critically select and use AI tools for the task
- Responsible use of AI tools
- Understand ethical aspect of AI

Data fundamentals

- Data science principles and techniques
- Data classification
- Basic analytics
- Story telling with data

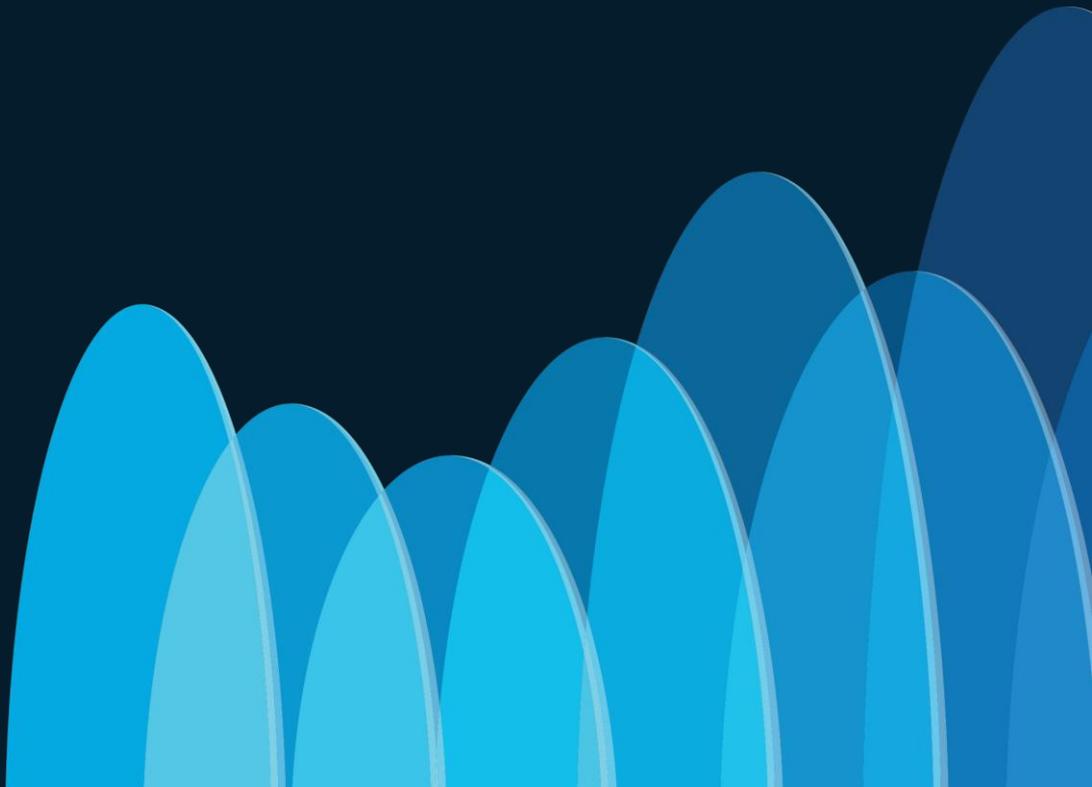
Prompt engineering

- How to interact with AI system with prompt
- Prompting techniques
- Potential and limitation of the prompting engineering

Complemented with professional (soft) skills such as, critical thinking, learning agility and effective communication.

<https://www.cisco.com/go/ai-workforce-consortium>

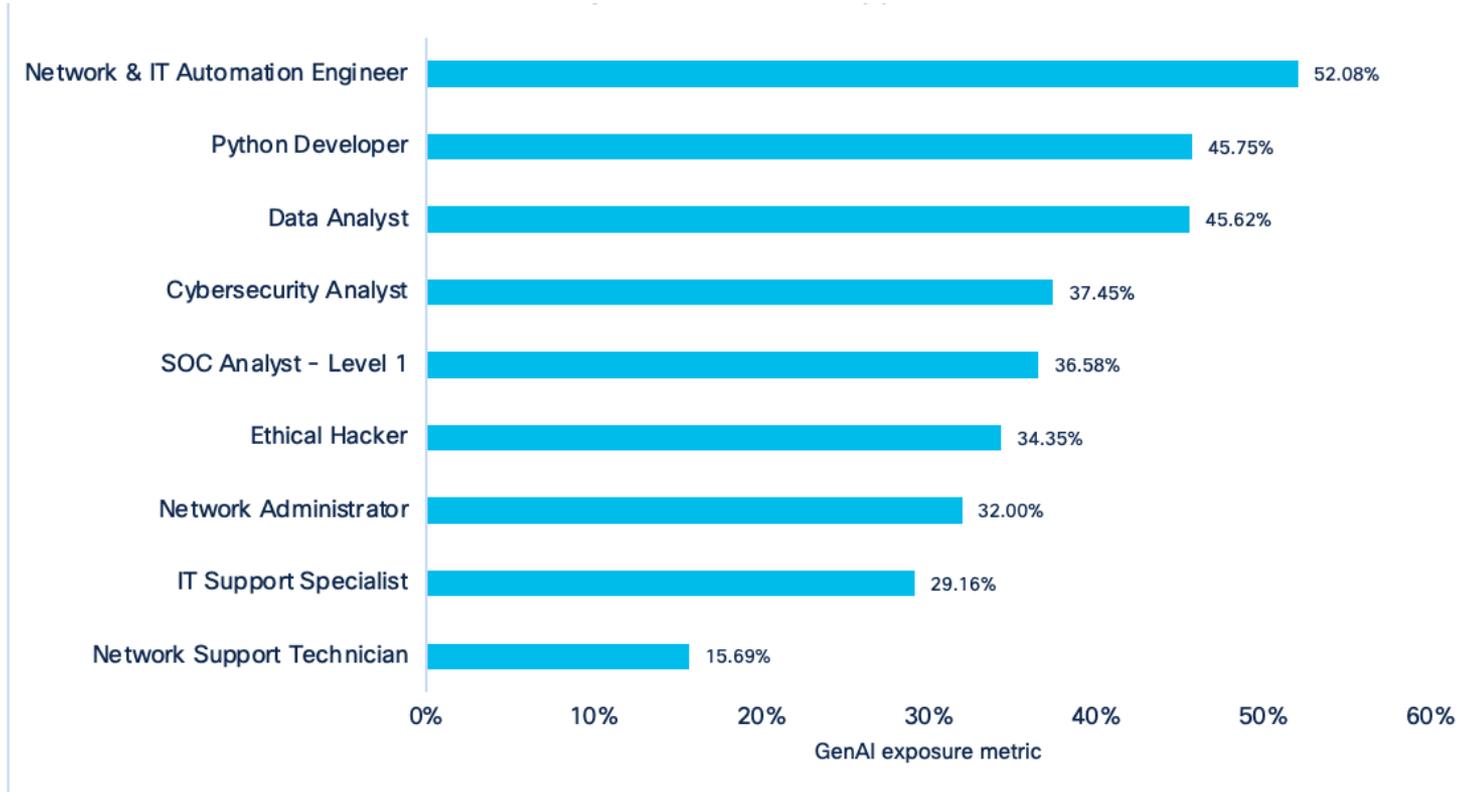
Netacad Jobs



Focusing on some of the Netacad Jobs

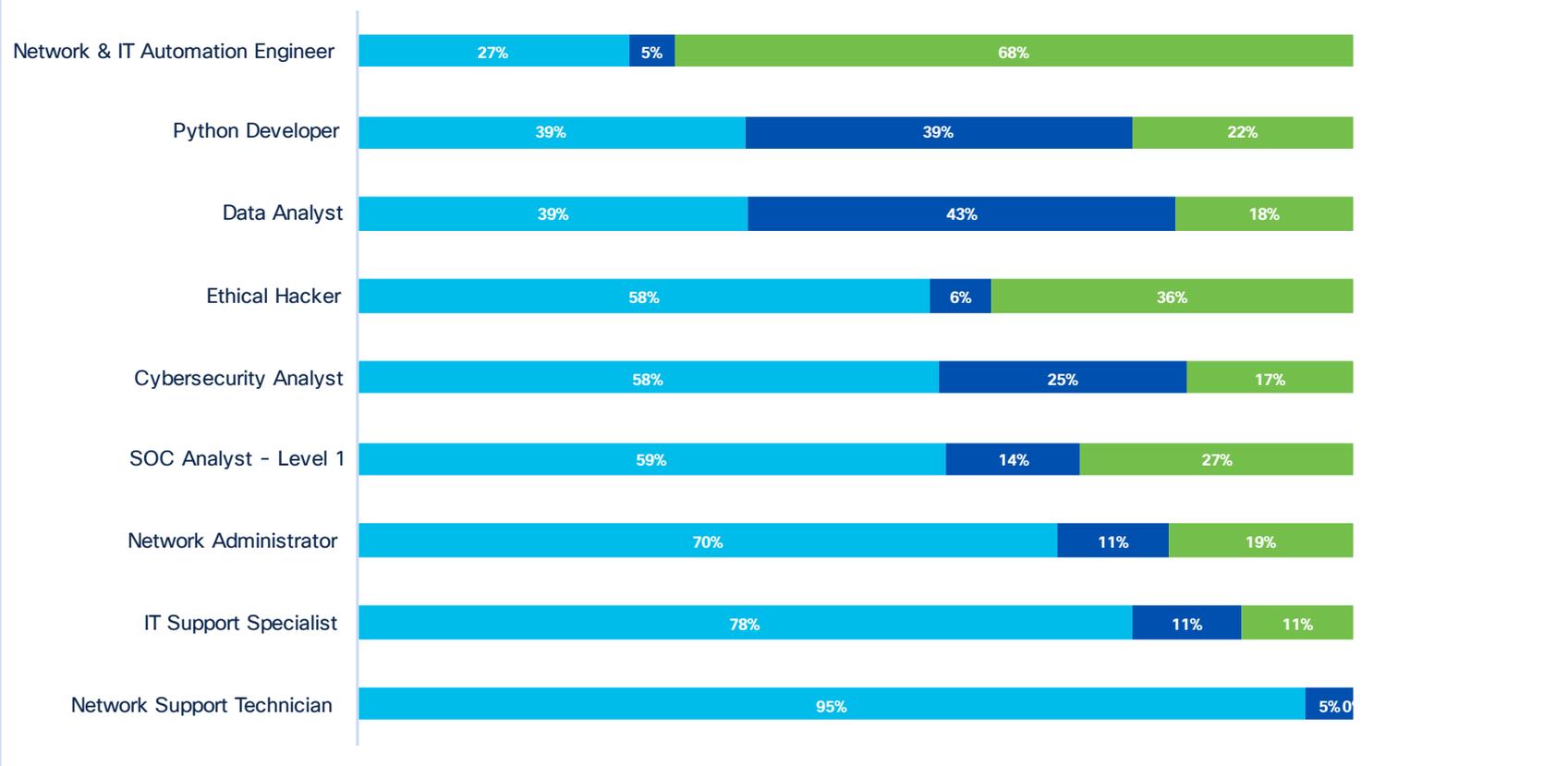
Job Role	Portfolio	Certification
IT Technician	IT Support Path*	CCST IT Support
Network Technician	Network Tech Pathway	CCST Networking
Network Administrator	CCNA	CCNA
Cybersecurity Analyst	Junior Cyber Pathway	CCST Cyber
SOC Level 1 Operator	CyberOps Associate	CyberOps
Ethical Hacker	Ethical Hacker	EH Certificate
Data Analyst	Data Analytics Essentials	--
Python Developer	Python Essentials 1, 1	PCAP
Network & IT Automation	DevNet Associate	DevNet Associate

Average Gen AI Exposure by Job Role



Percentage of Skills Impact Category

- Mildly Affected
- Decreasing Relevance
- Increasing Relevance



Conclusions
what does this
mean for us?



Conclusions and next steps

1) General consensus that significant changes will happen in the skill required for ICT jobs in the next 3/5 years

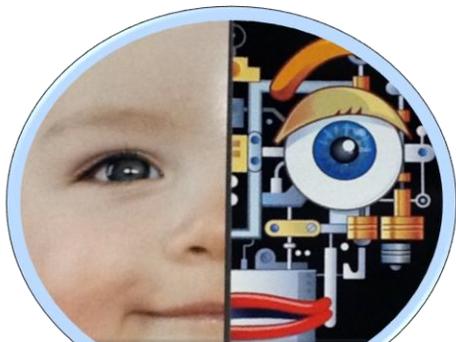
2) Use the report and methodology to help inform program adaptation.

3) Start today Introducing new skills: AI Literacy, Responsible AI, Prompt Engineering and increase attention to Data Foundation as well as professional skills such as Critical Thinking and Learning Agility.

4) Share best practices to equip our students and upskill workers.



Full Report (195pp)



Grazie! <3

```
$ echo "Bedankt!"
```

```
System.out.println("Merci!");
```

```
Router# send log 6 "Thank you!"
```

```
std::cout << " Dank je!" << std::endl;
```

```
0x5468616e6b7321
```

Agenda

- 1000 Brief Welcome
- 1005 Shaping the future: platform and product developments
- 1050 Thoughts on: feeding Europe's talent pipeline
- 1110 AI and the future of ICT skills
- **1155 Morning wrap up**
- 1200 Lunch & conference visit



Networking Academy Day

Morning Session

Willem-Jan Derks

Networking Academy & ASC/ITC Manager Netherlands

CISCO *Live!*





Thank you

We continue at 1400
for the afternoon session.

Enjoy Lunch and Have a
look at the world of
solutions
CISCO Live!

