

## Awards and Winnings

**DeveloperWeek Austin 2021 Global Champion + Replicated Challenge Winner**

**DeveloperWeek 2022 RipleX Challenge Winner**

**International Youth Math Challenge 2021 Gold Honor**

**Founder at The Restructuring Of Learning**

**Digital Education Hack South Asia 2021 – 4 prototypes Winner**

**Route Mobile RAPID Hackathon Global API Challenge 2021 – Finalist**

**The World After Covid-19 By KPMG & Microsoft – Finalist**

**Open Web Forum 2022 Hackathon – Finalist (ongoing)**

**NGIS CHUNAUTI-2.0 - NextGen Startup Challenge Contest – Grand Finalist**

**3M CII Young Innovators Challenge Award 2021 – Finalist**

**Schaeffler India Social Innovator Fellowship Program 2021 – Finalist**

**Beckn-a-thon – Winner**

**IBM <Reimagine Future> Hackathon – Finalist**

**The World After Covid-19 By KPMG – Finalist**

**CTRL + HACK + INSERT Sustainability – Shortlisted (ongoing)**

**The Orkes Hack - Shortlisted (ongoing) - Shortlisted (ongoing)**

**Build a Better Tomorrow – Finalist (ongoing)**

**DevRev Hackathon - Coding with AI – Finalist (ongoing)**

**HackForGood: Grab Hackathon 2022 - Shortlisted (ongoing)**

**Breaking the Bottleneck: Shortened Supply Chains – Finalist (ongoing)**

**Enter the Travel-Verse – Finalist**

**Ctrl Alt Debt - Finalist**

**Prasaga Use Case Ideathon - Winner (3<sup>rd</sup>)**

**DivHacks 2021 By Columbia University WiCS – Winner**

**STEM Olympics –winner**

**Ecothon - Finalist**

**IEI HACKATHON - Finalist**

**Lights, Camera, Hacktion! II – Winner**

**Hack For Sport Hackathon National Finalist Held on Goa 19Jun, 2022**

**KardiaChain Pioneer Program 2.0 X A.W.S – Finalist**

**5ire Hackathon – Finalist (ongoing)**

**Hackbrio'22 – Finalist eRaksha**

**Web3athon – Shortlisted (ongoing)**

**SirionLabs HackFest – Finalist (ongoing)**

**Competition 2021 – Semi Finalist**

**Source Code, By KSHITIJ 2022, IIT KHARAGPUR – Finalist**

**U.E.Q. (Ultimate Electronic Quiz) by I.I.T – Certificate of Apperication for being in the top 1%**

**Anadigix, an all-India level event organized by Kshitij, IIT KHARAGPUR – Finalist**

**Mathematics Olympiad, an all-India level event organized by Kshitij, IIT KHARAGPUR – Finalist**

**Hackfest 2022 – Winner**

**2022 Circle Hackathon – Finalist**

**Hack4A::Y – Finalist**

**International Monthly Astronomy Quiz – Finalist**

**All India Business Analytics Quiz organised by Tripadasoft Solutions – Finalist**

**Quizzard 2022 – Finalist**

**IBM Reimagine <Future> Hackathon - Finalist**

**Murder Mystery By Indian Institute of Management (IIM), Rohtak - Finalist**

**Google Kickstarter and Competitive Programming.**

**Hack of PI , Pan IIT Global Hackathon – Finalist (smart street lights project)**

**Chegg Re-Invent Hackathon 2022 – shortlisted (ongoing)**

**Start-Up India Innovator Challenge and Many Many More...**

Joy Deep Saha

ID#: cf74ab9e-6c92-46aa-9667-29ce62149fa7

sahajoydeep2002@gmail.com

[www.credly.com/users/joy-deep-saha](http://www.credly.com/users/joy-deep-saha)



## Google IT Support Certificate

Issued by: Coursera

Issued to: JOY DEEP SAHA

Issued on: 14 April 2022

### Description

Those who earn the Google IT Support Certificate have completed five-courses, developed by Google, that include hands-on, practice-based assessments and are designed to prepare them for entry-level roles in IT support. They are competent in foundational skills, including troubleshooting and customer service, networking, operating systems, system administration, and security.



Course Number: GOOG-0001

Total Credits: 12

Grade: Pass

### Credit Recommendation

- 6 semester hours in computer information systems. in the lower-division undergraduate category
- 3 semester hours in computer networking. in the lower-division undergraduate category
- 3 semester hours in cybersecurity fundamentals. in the lower-division undergraduate category



## Introduction to Cybersecurity Tools & Cyber Attacks

Issued by: Coursera

Authorized by: IBM

Issued to: Joy deep Saha

Issued on: 17 August 2020

### Description

This badge earner understands the various types of malicious software and the evolution of security based on past cyber-attacks. They have gained an understanding of key cybersecurity

concepts such as CIA Triad, Access Management, Incident Response, as well as key cybersecurity tools including firewall, anti-virus, cryptography, penetration testing and digital forensics.



## Cloud Core

Issued by: IBM

Issued to: JOY DEEP SAHA

Issued on: 7 February 2022

### Description

This badge holder understands the basics of cloud technology and is able to describe cloud platforms and models including IaaS, PaaS, SaaS, Public, Private and Hybrid Multi clouds. The badge earner is familiar with essentials of cloud applications and terms like Virtualization, VMs, Containers, Object Storage, Microservices, Serverless, Cloud Native, and DevOps. The individual has also gained hands-on experience at creating a Cloud account and provisioning services on IBM Cloud.



## Data Science Orientation

Issued by: Coursera

Authorized by: IBM

Issued to: Joy deep Saha

Issued on: 12 March 2022

### Description

This badge earner has a good understanding of why data science, artificial intelligence (AI) and machine learning are revolutionizing the way people do business and research around the world. They have general knowledge on what data science is today.



## Python for Data Science

Issued by: IBM

Issued to: JOY DEEP SAHA

Issued on: 11 April 2022

### Description

The badge earner is able to write their own Python scripts and perform basic hands-on data

analysis using IBM's Jupyter-based lab environment.

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## IBM Blockchain Foundation Developer V2

**Issued by:** IBM

**Issued to:** JOY DEEP SAHA

**Issued on:** 11 April 2022

### Description

This badge earner has demonstrated the foundational knowledge needed to develop for Hyperledger Fabric using the IBM Blockchain Platform VS Code extension. The earner has gained hands-on experience of building, deploying, testing, debugging and updating a Hyperledger Fabric blockchain application and smart contract.

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## Data Science with Scala

**Issued by:** IBM

**Issued to:** JOY DEEP SAHA

**Issued on:** 11 April 2022

### Description

This badge earner has demonstrated the ability to apply Scala and Spark for statistics and machine learning tasks. They have the ability to prepare data and perform feature engineering. The earner is also able to fit a model, create pipelines, and select optimum model parameters.

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## Machine Learning with R - Level 1

**Issued by:** IBM

**Issued to:** JOY DEEP SAHA

**Issued on:** 11 April 2022

### Description

The badge earner has demonstrated an understanding of Supervised vs. Unsupervised Learning, how Statistical Modelling relates to Machine Learning, and how to build and evaluate machine learning models.

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## Statistics 101

**Issued by:** IBM

**Issued to:** JOY DEEP SAHA

**Issued on:** 11 April 2022

### Description

This badge earner demonstrates an understanding of descriptive statistics, normal distribution, standard deviation, variance, correlation, and best practices for data visualization.



## Advanced Kubernetes Operators

**Issued by:** IBM

**Issued to:** JOY DEEP SAHA

**Issued on:** 13 April 2022

### Description

This badge earner has developed advanced skills on building operators with Operator-sdk. They have demonstrated an understanding of the advanced topics of operator control loop reconciliation, deployment and management of operators using Operator Lifecycle Manager, and ways to test deployed operators.



## Using SAS Viya APIs with Python and R

**Issued by:** Coursera

**Authorized by:** SAS

**Issued to:** JOY SAHA

**Issued on:** 14 April 2022

### Description

In this course, you learn to use the R and Python APIs to take control of SAS Cloud Analytic Services (CAS) and submit actions from Jupyter Notebook. You learn to upload data into the in-memory distributed environment, analyze data, and create predictive models on CAS using familiar open source functionality via the SWAT (SAS Wrapper for Analytics Transfer) package.



## Google/Gies College of Business Dual Credential

Issued by: Coursera

Issued to: JOY DEEP SAHA

Issued on: 16 April 2022

### Description

Those who earn the Google/Gies College of Business dual credential completed both the Google IT Support Certificate and the Professional Success Skills Certificate from Gies College of Business at the University of Illinois Urbana-Champaign. They are competent in foundational IT skills, including troubleshooting and customer service, networking, operating systems, system administration, and security, and in skills like decision-making, creative problem-solving, communication, and leadership.



## LFD121: Developing Secure Software

Issued by: The Linux Foundation

Issued to: Joy Deep Saha

Issued on: 18 April 2022

### Description

Earners of the LFD121: Developing Secure Software badge know the practical steps that must be taken to counter most kinds of attacks. Using these steps, they create and maintain systems that are much harder to successfully attack, reduce the damage when attacks are successful, and speed up the response so that any latent vulnerabilities can be rapidly repaired.



## Autodesk Certified Credential in Generative Design for Manufacturing

Issued by: Coursera

Authorized by: Autodesk

Issued to: JOY DEEP SAHA

Issued on: 18 April 2022

### Description

This Autodesk Certified Credential validates the skills and accomplishments earned throughout the "Autodesk Generative Design for Manufacturing Specialization" found on Coursera. Earners of this badge have successfully completed required assignments from 4 courses, including hands-on projects that practiced job ready skills in CAD, CAM, and CAE. These courses focused on foundations of product innovation and generative design, while developing learners' technical skills in Autodesk® Fusion 360™.



## SUNY #EmTechMOOC Completer

Issued by: Coursera

Authorized by: SUNY Center for Professional Development

Issued to: JOY DEEP SAHA

Issued on: 18 April 2022

### Description

Earners of this badge have demonstrated that they are able to identify the value and implications of using established and emerging technology tools for personal and professional growth and have developed lifelong learning habits to keep pace with technology change by successfully completing SUNY's #EmTechMOOC.



## Cloud Pak for Integration Essentials

Issued by: IBM

Issued to: JOY DEEP SAHA

Issued on: 18 April 2022

### Description

This badge earner has received hands-on experience with a comprehensive cloud integration solution using IBM Cloud Pak for Integration. This includes using the Cloud Pak for Integration platform to manage an API ecosystem, to integrate applications and data across multiple clouds and on premise, to enact transactional data exchanges between applications, and to implement responsive application patterns that can react to events in realtime.



## Scala Programming for Data Science - Level 1

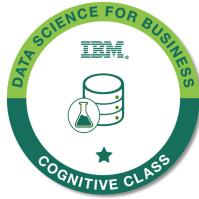
Issued by: IBM

Issued to: JOY DEEP SAHA

Issued on: 18 April 2022

### Description

This badge earner understands the main concepts of Scala programming including object oriented programming, case object and classes, collections, for expressions, pattern matching and more.



## Data Science for Business - Level 1

Issued by: IBM

Issued to: JOY DEEP SAHA

Issued on: 18 April 2022

### Description

This badge earner understands the relationship between collection and dissemination of data in technology. The individual also understands the public expectation of privacy and the legal and political issues surrounding them.



## Hybrid Cloud Conference – App Security and Threat Modeler

Issued by: IBM

Issued to: JOY DEEP SAHA

Issued on: 18 April 2022

### Description

This badge earner has been introduced to Hybrid Cloud concepts for application development and DevOps implementation. The earner has gained knowledge towards building smart and secure applications in the cloud by creating a conceptual credit card application using Red Hat® OpenShift® on IBM Cloud®.



## Hybrid Cloud Conference – Microservices Architect

Issued by: IBM

Issued to: JOY DEEP SAHA

Issued on: 18 April 2022

### Description

This badge earner has been introduced to Hybrid Cloud concepts for application development and DevOps implementation. The earner has gained knowledge towards building smart and secure applications in the cloud by creating and deploying microservices architecture to a conceptual credit card application using Red Hat® OpenShift® on IBM Cloud®.



## Introduction to Machine Learning with Sound

Issued by: IBM

Issued to: JOY DEEP SAHA

Issued on: 18 April 2022

### Description

Earners of this badge know how to prepare data so that it can be consumed by machine learning models by using IBM Watson Studio, build a binary classification model that can predict which animal is making a sound, build multiclass classification models to detect whether a birdsong is from a bird from a specific order, make predictions on audio files by using a Node-RED app, and create a UI in Node-RED and integrate the Watson Visual Recognition service to identify images of animals.



## Big Data Foundations - Level 1

Issued by: IBM

Issued to: JOY DEEP SAHA

Issued on: 18 April 2022

### Description

This badge earner has a basic understanding of Big Data concepts and their applications to gain insight for providing better service to customers. The earner understands that Big Data should be processed in a platform that can handle the variety, velocity, and the volume of data by using components that require integration and data governance.



## Cloud Native Security Conference - App Security

Issued by: IBM

Issued to: JOY DEEP SAHA

Issued on: 19 April 2022

### Description

This badge earner has been introduced to Cloud Native Security concepts for application security. The earner has gained knowledge of the essentials of Kubernetes Networking and gained hands-on skills to implement access control of their cluster using service types from ClusterIP, NodePort, LoadBalancer to Ingress and Network Policies with Calico.

## AMERICAN COUNCIL ON EDUCATION TRANSCRIPT LEGEND

This official transcript contains credentials evaluated by the American Council on Education. The following policies apply only to ACE validated and endorsed credentials within the transcript. The American Council on Education's Learning Evaluations connects workplace learning with colleges and universities by helping adults gain access to academic credit for formal courses and examinations taken outside traditional degree programs. ACE is the national leader in the evaluation process for education and training obtained outside the classroom.

ACE Learning Evaluations reviews are conducted by experienced college and university faculty who assess the content, scope, and rigor of an organization's educational program and make appropriate recommendations for comparable college credit and competencies achieved by students. For more information on processes and standards for ACE reviews, visit <https://www.acenet.edu/Programs-Services/Pages/Credit-Transcripts/Colleges-Universities.aspx>.

### DEFINITIONS

**American Council on Education Endorsement:** Credentials

that carry an ACE endorsement of recommended college credits or validated competencies are designated by the ACE logo in the left margin.

**Name:** Legal name as entered by the student at the time of transcript request. Because students may complete courses from multiple organizations, each credential also includes the name under which the credential was issued for tracking and verification if necessary.

**Credly ID#:** Due to a system of record change in 2019, student ID numbers may not match numbers on older ACE transcripts.

**Issued on:** The date when the student completed the associated credential.

**Courses:** ACE-endorsed credentials include a unique identifier that ACE assigns to courses and examinations. The letter prefix designates the organization providing the experience. Duplicates may appear if a student took and passed a course or examination more than once.

**Credit Recommendations:** Recommendations for college credit are designated in semester hour units (SH). Each recommendation includes a total number of SH credits recommended and a breakdown of one or more subject areas and credit levels. Levels for which recommendations are issued include Vocational/Certificate, Lower Division (100-200 level courses), Upper Division (300-400 level courses), and Graduate (500+ level courses).

**Grades:** ACE-endorsed credentials are only included on this official transcript if the student achieved a passing grade. ACE-endorsed courses and exams meet the following minimum grading requirements: Students must earn a minimum "C" grade for Vocational/Certificate, Lower Division, and Upper Division credit and a minimum "B" grade for Graduate level credit.

### RESOURCES

Additional information on ACE-endorsed educational programs, such as learning outcomes, assessment methods, etc. can be found in the National Guide to College Credit for Workforce Training at <https://www.acenet.edu/national-guide/>. Military training and occupations that carry college credit recommendations can be found at The ACE Military Guide at: <https://www.acenet.edu/Programs-Services/Pages/Credit-Transcripts/military-guide-online.aspx>.

**Inquires:** Please address inquiries to:  
American Council on Education Learning Evaluations  
One Dupont Circle NW, Suite 250,  
Washington DC, 20036

**Email:** CREDIT@acenet.edu

**Phone:** 1-866-205-6267

**Technical Support:** For technical support, visit the Credly Help Center: <https://support.credly.com/hc/en-us>

CS50 Certificate

CS50 congratulates

# JOY DEEP SAHA

on completion of CS50's Introduction to  
Artificial Intelligence with Python,  
including twelve projects and seven quizzes.

Awarded from Cambridge, Massachusetts,  
in the year two thousand twenty-one.

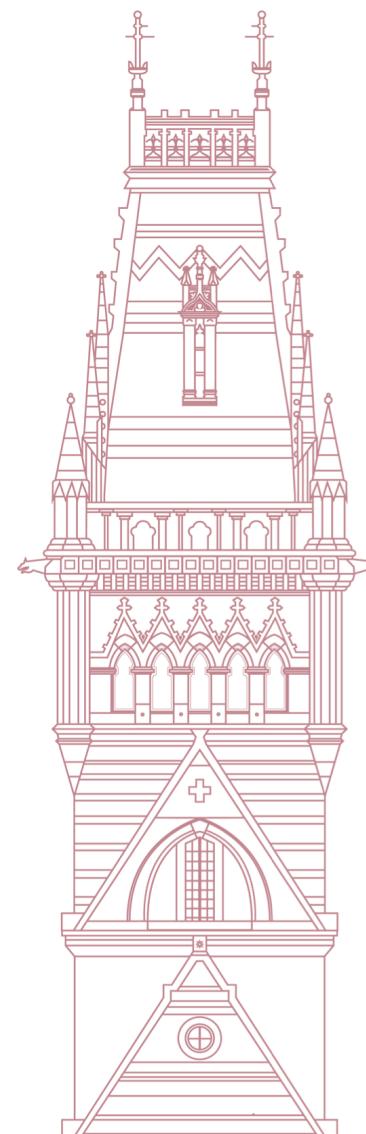


David J. Malan

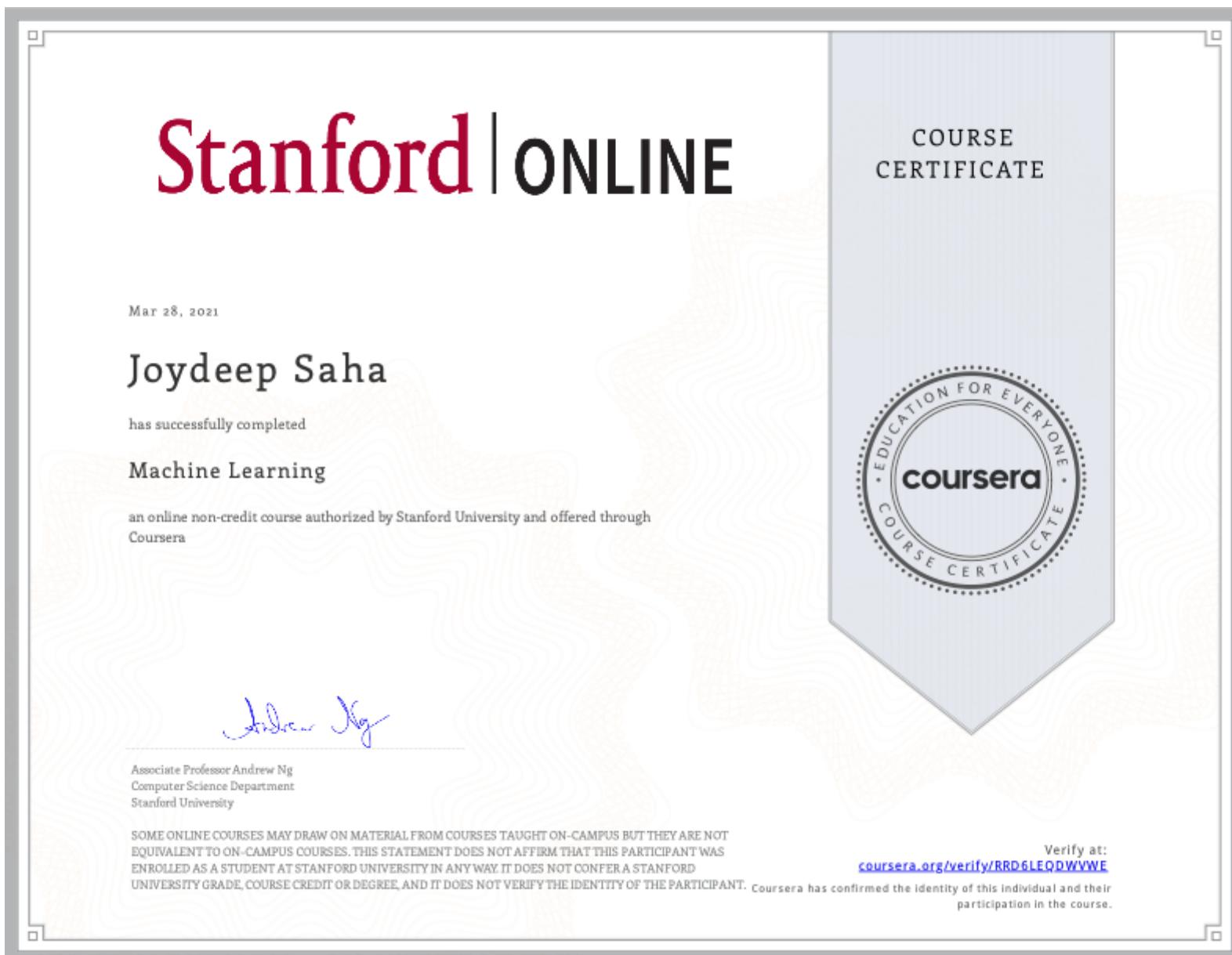
Gordon McKay Professor of the Practice of Computer Science  
Harvard University



<https://cs50.harvard.edu/certificates/1ebd7dec-4c75-4d14-825f-121b2b2d8dba>



<https://cs50.harvard.edu/certificates/1ebd7dec-4c75-4d14-825f-121b2b2d8dba>



The certificate is framed in grey. At the top left, it says "Stanford | ONLINE". On the right, it says "COURSE CERTIFICATE". In the center, there is a circular seal with "EDUCATION FOR EVERYONE" around the top and "COURSERA" in the center, with "COURSE CERTIFICATE" at the bottom. At the bottom left, it says "Associate Professor Andrew Ng" and "Computer Science Department, Stanford University". At the bottom right, it says "Verify at: coursera.org/verify/RRD6LEQDWVWE". A blue handwritten signature of "Andrew Ng" is visible on the left side of the certificate.

Mar 28, 2021

Joydeep Saha

has successfully completed

Machine Learning

an online non-credit course authorized by Stanford University and offered through Coursera

Associate Professor Andrew Ng  
Computer Science Department  
Stanford University

SOME ONLINE COURSES MAY DRAW ON MATERIAL FROM COURSES TAUGHT ON-CAMPUS BUT THEY ARE NOT EQUIVALENT TO ON-CAMPUS COURSES. THIS STATEMENT DOES NOT AFFIRM THAT THIS PARTICIPANT WAS ENROLLED AS A STUDENT AT STANFORD UNIVERSITY IN ANY WAY. IT DOES NOT CONFER A STANFORD UNIVERSITY GRADE, COURSE CREDIT OR DEGREE, AND IT DOES NOT VERIFY THE IDENTITY OF THE PARTICIPANT. Coursera has confirmed the identity of this individual and their participation in the course.

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<https://coursera.org/verify/RRD6LEQDWVWE>



THE UNIVERSITY OF  
**CHICAGO**

Feb 6, 2022

**Joydeep Saha**

has successfully completed

**Software Defined Networking**

an online non-credit course authorized by The University of Chicago and offered through Coursera

Professor Nick Feamster  
Neubauer Professor  
Department of Computer Science  
University of Chicago

COURSE  
CERTIFICATE



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**UCI** University of  
California, Irvine

08-Feb-2022

**JOY DEEP SAHA**

has successfully completed

**The Arduino Platform and C Programming**

an online non-credit course authorized by University of California, Irvine and offered through Coursera

Ian Harris  
Professor  
Department of Computer Science

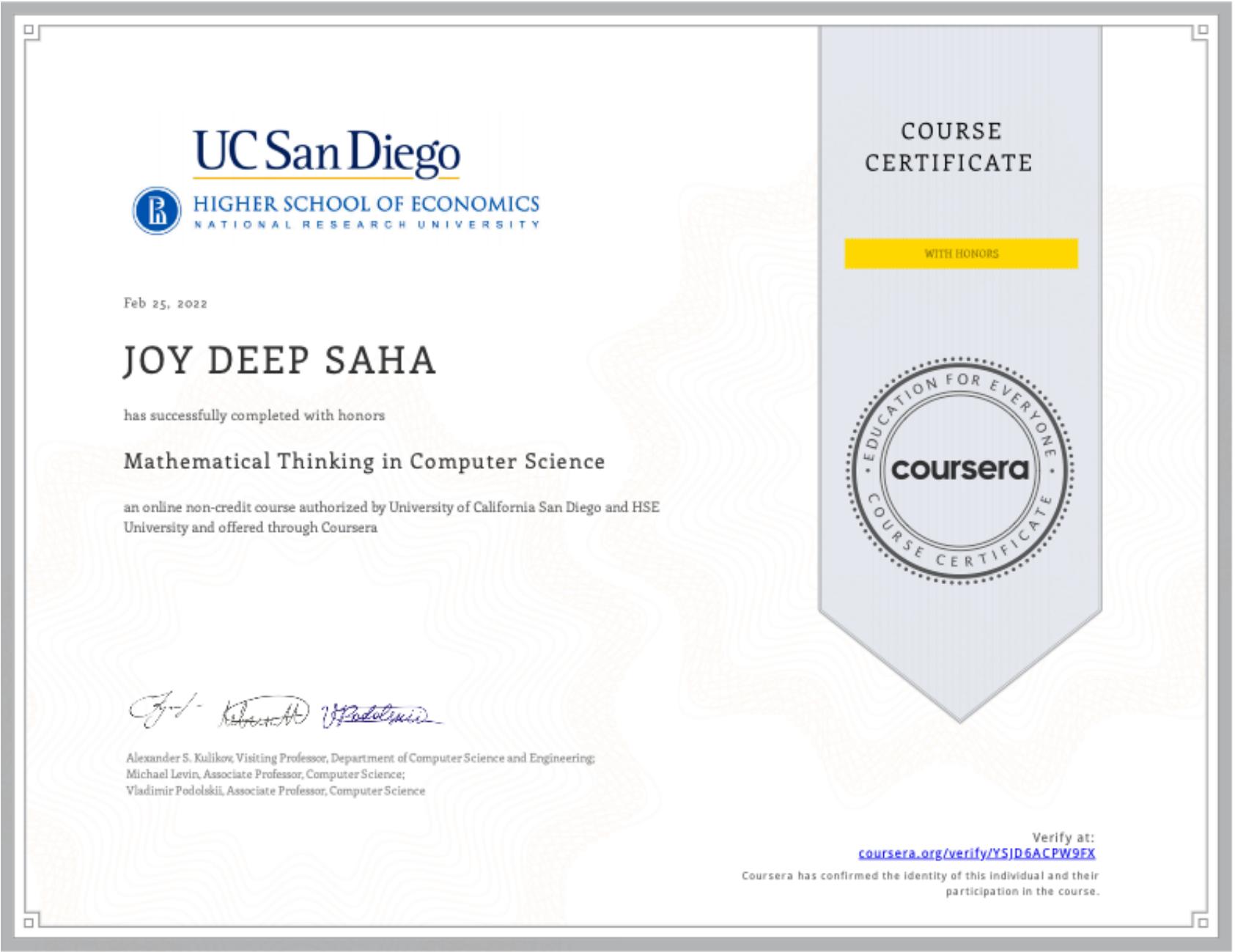
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## Certificate of Achievement

# Joy Deep Saha

has completed the following course:

### DIGITAL SKILLS: ARTIFICIAL INTELLIGENCE ACCENTURE

This online course helped discover the potential of Artificial Intelligence (AI) and how it can change the workplace. It enhanced understanding of AI with interesting facts, trends, and insights, and helped to explore the working relationship between humans and AI.

3 weeks, 2 hours per week



Camilla Drejer

Managing Director for UKI Responsible Business & Citizenship  
Accenture



In association with



The person named on this certificate has completed the activities in the attached transcript. For more information about Certificates of Achievement and the effort required to become eligible, visit [futurelearn.com/proof-of-learning/certificate-of-achievement](https://futurelearn.com/proof-of-learning/certificate-of-achievement).

This certificate represents proof of learning. It is not a formal qualification, degree, or part of a degree.





COURSE  
CERTIFICATE



Feb 25, 2022

## Joydeep Saha

has successfully completed

### Mathematics for Machine Learning: Linear Algebra

an online non-credit course authorized by Imperial College London and offered through Coursera

David Dye, Samuel J. Cooper, and A. Freddie Page

Verify at:  
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COURSE  
CERTIFICATE



Feb 25, 2022

## Joydeep Saha

has successfully completed

### Machine Learning for All

an online non-credit course authorized by University of London and offered through Coursera

Prof Marco Gillies  
Computing Department,  
Goldsmiths, University of London

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## COURSE CERTIFICATE



09-Feb-2022

### JOY DEEP SAHA

has successfully completed

#### Learn to Program: The Fundamentals

an online non-credit course authorized by University of Toronto and offered through Coursera

Professor Jennifer Campbell  
Department of Computer Science  
Faculty of Arts and Science  
University of Toronto

Paul Gries  
Professor, Teaching Stream  
Department of Computer Science  
Faculty of Arts and Science  
University of Toronto

Verify at:

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## COURSE CERTIFICATE



08-Feb-2022

### JOY DEEP SAHA

has successfully completed

#### Managing Network Security

an online non-credit course authorized by University System of Georgia and offered through Coursera

Herbert J Mattord, Ph.D., CISM, CISSP, CDP  
Professor of Information Security and Assurance  
Department of Information Systems

Verify at:

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Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/SMASC2N5W5GJ>



## Certificate of Achievement

# Joy Deep Saha

has completed the following course:

### INTRODUCTION TO PHYSICAL COMPUTING LANCASTER UNIVERSITY AND INSTITUTE OF CODING

This course explored what physical computing is, how it's changed over the years and what it's growing into. It explored the anatomy of physical computing and debated the ethical considerations of its applications. It also explored the creative uses of this technology and careers in the industry.

2 weeks, 2 hours per week



**Joe Finney**  
Professor of Computer Science  
Lancaster University



The person named on this certificate has completed the activities in the attached transcript. For more information about Certificates of Achievement and the effort required to become eligible, visit [futurelearn.com/proof-of-learning/certificate-of-achievement](https://futurelearn.com/proof-of-learning/certificate-of-achievement).

This certificate represents proof of learning. It is not a formal qualification, degree, or part of a degree.



<https://www.futurelearn.com/certificates/oxzhhzf>



## COURSE CERTIFICATE

Feb 8, 2022

### JOY DEEP SAHA

has successfully completed

#### Introduction to Programming with MATLAB

an online non-credit course authorized by Vanderbilt University and offered through Coursera



Akos Ledeczi, Ph.D.  
Professor  
Computer Engineering, Computer Science, and Electrical Engineering

J. Michael Fitzpatrick, PhD  
Professor Emeritus  
Computer Science, Computer Engineering, Electrical Engineering, Neurosurgery, and Radiology

Verify at:

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<https://coursera.org/verify/JZSRLT2T22YD>



## COURSE CERTIFICATE

17-Mar-2021

### JOY DEEP SAHA

has successfully completed

#### The Data Scientist's Toolbox

an online non-credit course authorized by Johns Hopkins University and offered through Coursera



Jeff Leek, PhD; Roger Peng, PhD; Brian Caffo, PhD  
Department of Biostatistics  
Johns Hopkins Bloomberg School of Public Health

Verify at:

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This certificate does not affirm that this learner was enrolled as a student at Johns Hopkins University. It does not confer a JHU grade, course credit or degree; establish a relationship between this learner and JHU; enroll or register this learner at JHU or in any course offered by JHU; or entitle this learner to access or use resources beyond the online courses provided by Coursera.

[http://coursera.org/verify/K89RZ6MKS25S](https://coursera.org/verify/K89RZ6MKS25S)



## Certificate of Achievement

# Joy Deep Saha

has completed the following course:

### INTRODUCTION TO VIRTUAL, AUGMENTED AND MIXED REALITY LANCASTER UNIVERSITY AND INSTITUTE OF CODING

This course explored the tools and technologies that support the features and applications of VR, AR and MR. Learners on this course discovered the basic concepts of creating VR, AR and MR experiences as well as the ethics involved in developing these kinds of applications.

2 weeks, 2 hours per week



Joe Finney  
Lancaster University



The person named on this certificate has completed the activities in the attached transcript. For more information about Certificates of Achievement and the effort required to become eligible, visit [futurelearn.com/proof-of-learning/certificate-of-achievement](https://futurelearn.com/proof-of-learning/certificate-of-achievement).

This certificate represents proof of learning. It is not a formal qualification, degree, or part of a degree.





# ONLINE

Feb 14, 2022

## JOY DEEP SAHA

has successfully completed

### AI Strategy and Governance

an online non-credit course authorized by University of Pennsylvania and offered through Coursera

## COURSE CERTIFICATE



  
Joydeep Saha

Kartik Hosanagar, Professor, Operations & Decisions | Lynn Wu, Associate Professor, Operations & Decisions  
Kevin Werbach, Professor, Legal Studies & Business Ethics | Prasanna Tambe, Associate Professor of Operations

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[coursera.org/verify/ZFHMVAXKMTL5](https://coursera.org/verify/ZFHMVAXKMTL5)

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Feb 14, 2022

## Joydeep Saha

has successfully completed

### Cloud Data Engineering

an online non-credit course authorized by Duke University and offered through Coursera

## COURSE CERTIFICATE



  
Noah Gift

Noah Gift  
Adjunct Professor  
Duke MIDS

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[coursera.org/verify/BW4RGCKY6EXF](https://coursera.org/verify/BW4RGCKY6EXF)

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<https://coursera.org/verify/BW4RGCKY6EXF>



## Certificate of Achievement

# Joy Deep Saha

has completed the following course:

### BIOINFORMATICS FOR BIOLOGISTS: AN INTRODUCTION TO LINUX, BASH SCRIPTING, AND R WELLCOME CONNECTING SCIENCE

This course covered main characteristics of Linux applied to biology, the structure and navigation of the Linux file system, Linux commands to manipulate and interrogate data files, running simple shell scripts in order to automate processing of data and use of R for data analysis and visualisation.

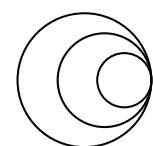
3 weeks, 5 hours per week



Dr Treasa Creavin  
Head of Conferences and Online Training  
Wellcome Connecting Science



Martin Aslett  
IT Manager  
Wellcome Connecting Science



**wellcome**  
**connecting**  
**science**

The person named on this certificate has completed the activities in the attached transcript. For more information about Certificates of Achievement and the effort required to become eligible, visit [futurelearn.com/proof-of-learning/certificate-of-achievement](https://futurelearn.com/proof-of-learning/certificate-of-achievement).

This certificate represents proof of learning. It is not a formal qualification, degree, or part of a degree.



Feb 12, 2022

## Joydeep Saha

has successfully completed

Programming for Everybody (Getting Started with Python)

an online non-credit course authorized by University of Michigan and offered through Coursera

COURSE  
CERTIFICATE



Charles Severance  
Clinical Professor, School of Information  
University of Michigan

Verify at:  
[coursera.org/verify/AKV4MCQVT3YQ](https://coursera.org/verify/AKV4MCQVT3YQ)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/AKV4MCQVT3YQ>



**MACQUARIE**  
University  
SYDNEY · AUSTRALIA

13-Feb-2022

## JOY DEEP SAHA

has successfully completed

Innovation and emerging technology: Be disruptive

an online non-credit course authorized by Macquarie University and offered through Coursera

COURSE  
CERTIFICATE



Mauricio Marrone, PhD  
Senior Lecturer  
Department of Accounting and Corporate Governance  
Macquarie Business School  
Sydney, Australia

Verify at:  
[coursera.org/verify/5UJFQK9YYY27](https://coursera.org/verify/5UJFQK9YYY27)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/5UJFQK9YYY27>



Issued 3rd February 2022. futurelearn.com/certificates/t4fqqfu



## Certificate of Achievement

# Joy Deep Saha

has completed the following course:

### DIGITAL SKILLS: WEB ANALYTICS ACCENTURE

This online course provided an insight into web analytics, its role in business and the types and techniques that can be used and why they are important in an ever-evolving digital world.

2 weeks, 2 hours per week



**Camilla Drejer**

Managing Director for UKI Responsible Business & Citizenship  
Accenture

# accenture

In association with



The person named on this certificate has completed the activities in the attached transcript. For more information about Certificates of Achievement and the effort required to become eligible, visit [futurelearn.com/proof-of-learning/certificate-of-achievement](https://futurelearn.com/proof-of-learning/certificate-of-achievement).

This certificate represents proof of learning. It is not a formal qualification, degree, or part of a degree.



<https://www.futurelearn.com/certificates/t4fqqfu>



## Certificate of Achievement

# Joy Deep Saha

has completed the following course:

### BACTERIAL GENOMES: DISEASE OUTBREAKS AND ANTIMICROBIAL RESISTANCE WELLCOME CONNECTING SCIENCE

This course explored the use of cutting edge genomic techniques in research on bacterial diseases, how they spread and how they resist antibiotic treatment.

The Royal College of Pathologists (RCPath) has accredited this course for 9 Continuing Professional Development credits. This applies to medical staff and clinical scientists in career grade posts who are enrolled with one of the Royal Colleges for CPD purposes.



**Dr Treasa Creavin**  
Head of Conferences and Online Training  
Wellcome Genome Campus Advanced Courses and Scientific Conferences



**Professor Nicholas Thomson**  
Group Leader, Bacterial Genomics and Evolution  
Wellcome Sanger Institute, Wellcome Genome Campus



Accredited by



The person named on this certificate has completed the activities in the attached transcript. For more information about Certificates of Achievement and the effort required to become eligible, visit [futurelearn.com/proof-of-learning/certificate-of-achievement](https://futurelearn.com/proof-of-learning/certificate-of-achievement).

This certificate represents proof of learning. It is not a formal qualification, degree, or part of a degree.



# Yale

Feb 7, 2022

## Joydeep Saha

has successfully completed with honors

### Financial Markets

an online non-credit course authorized by Yale University and offered through Coursera

### COURSE CERTIFICATE

WITH HONORS



*Robert J. Shiller*

Robert J Shiller  
Sterling Professor of Economics  
Yale University

Verify at:  
[coursera.org/verify/6GEJQJ34CJU5](https://coursera.org/verify/6GEJQJ34CJU5)  
Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/6GEJQJ34CJU5>



Feb 8, 2022

## Joydeep Saha

has successfully completed

### Digital Transformation

an online non-credit course authorized by University of Virginia and BCG and offered through Coursera

### COURSE CERTIFICATE



*[Signature]*  
Michael Lenox  
Amane Dannouni  
Ching Fong Ong

Verify at:  
[coursera.org/verify/83EEYR892NFZ](https://coursera.org/verify/83EEYR892NFZ)  
Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/83EEYR892NFZ>



## Certificate of Achievement

# Joy Deep Saha

has completed the following course:

### BUSINESS FUTURES: SUSTAINABLE BUSINESS THROUGH GREEN HR RMIT UNIVERSITY

This online course focuses on green HR - human resource strategies for sustainable business practices.

3 weeks, 2 hours per week



Annie Delaney  
Senior Lecturer in Management  
RMIT University



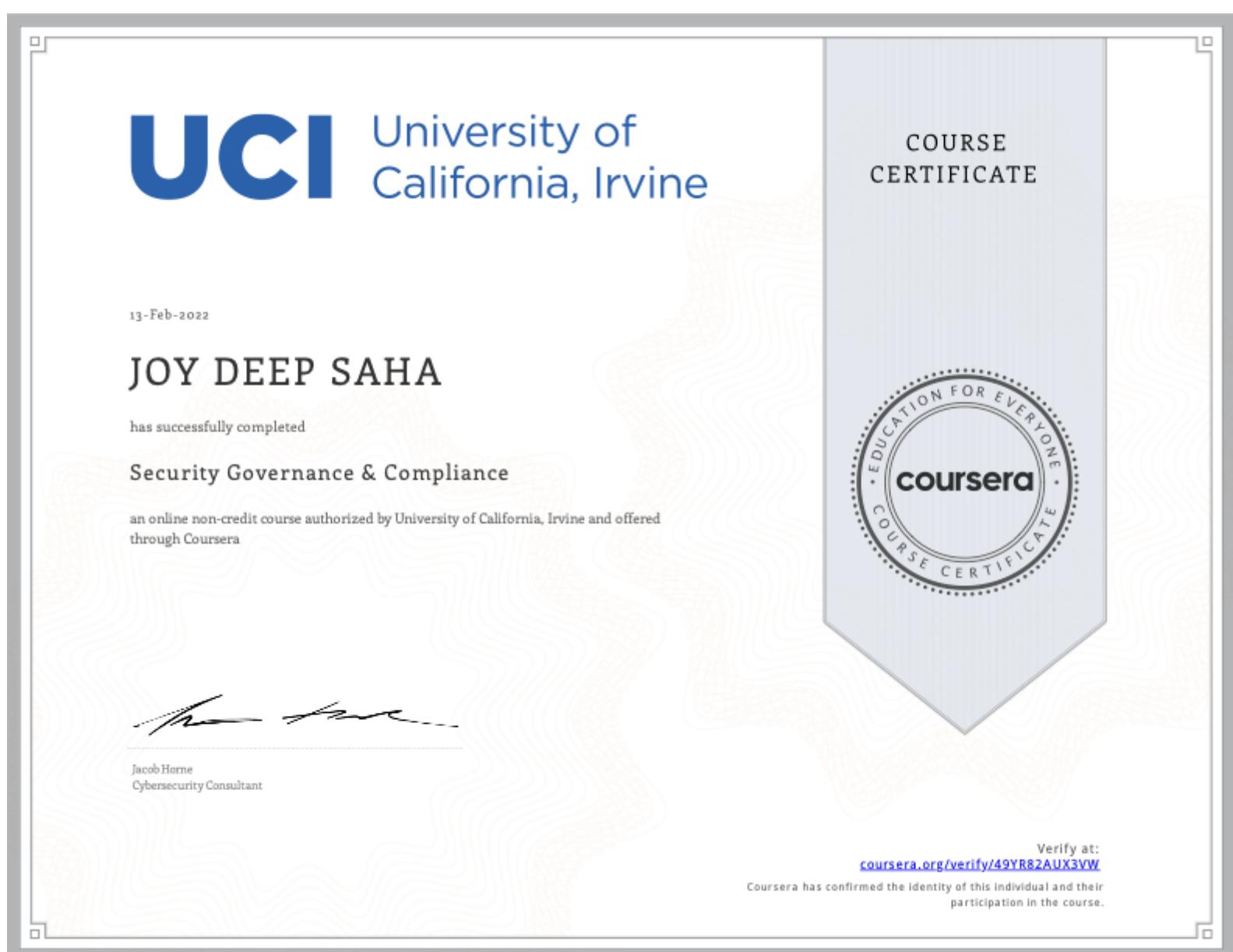
The person named on this certificate has completed the activities in the attached transcript. For more information about Certificates of Achievement and the effort required to become eligible, visit [futurelearn.com/proof-of-learning/certificate-of-achievement](https://futurelearn.com/proof-of-learning/certificate-of-achievement).

This certificate represents proof of learning. It is not a formal qualification, degree, or part of a degree.





<https://coursera.org/verify/G8CYVUJNX7E3>



<https://coursera.org/verify/49YR82AUX3VW>

# Stanford | ONLINE

Feb 7, 2022

## Joydeep Saha

has successfully completed

**Divide and Conquer, Sorting and Searching, and Randomized Algorithms**

an online non-credit course authorized by Stanford University and offered through Coursera

COURSE  
CERTIFICATE



Tim Roughgarden  
Associate Professor of Computer Science  
Stanford University

SOME ONLINE COURSES MAY DRAW ON MATERIAL FROM COURSES TAUGHT ON-CAMPUS BUT THEY ARE NOT EQUIVALENT TO ON-CAMPUS COURSES. THIS STATEMENT DOES NOT AFFIRM THAT THIS PARTICIPANT WAS ENROLLED AS A STUDENT AT STANFORD UNIVERSITY IN ANY WAY. IT DOES NOT CONFER A STANFORD UNIVERSITY GRADE, COURSE CREDIT OR DEGREE, AND IT DOES NOT VERIFY THE IDENTITY OF THE PARTICIPANT. Coursera has confirmed the identity of this individual and their participation in the course.

Verify at:  
[coursera.org/verify/246HAFFW76GX](https://coursera.org/verify/246HAFFW76GX)

<https://coursera.org/verify/246HAFFW76GX>



COURSE  
CERTIFICATE



Feb 6, 2022

## Joydeep Saha

has successfully completed

**Python and Statistics for Financial Analysis**

an online non-credit course authorized by The Hong Kong University of Science and Technology and offered through Coursera

Xuhua Wan  
Associate Professor  
Department of Information Systems, Business Statistics and Operations Management

Verify at:  
[coursera.org/verify/BANCC79RRQTR](https://coursera.org/verify/BANCC79RRQTR)

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<https://coursera.org/verify/BANCC79RRQTR>



COURSE  
CERTIFICATE

Feb 7, 2022

Joydeep Saha

has successfully completed

Cloud Virtualization, Containers and APIs

an online non-credit course authorized by Duke University and offered through Coursera



Noah Gift

Noah Gift  
Adjunct Professor  
Duke MIDS

Verify at:  
[coursera.org/verify/C9CKTMMCKJJ](https://coursera.org/verify/C9CKTMMCKJJ).

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/C9CKTMMCKJJ>



This is to certify that

**JOY DEEP SAHA**

successfully completed and received a passing grade in

**Introduction to Cloud**

(CC0101EN, provided by IBMDeveloperSkillsNetwork)

A course on cognitiveclass.ai  
Powered by IBM Developer Skills Network.

Issued by  
Cognitive Class

**February 7, 2022**

Authenticity of this certificate can be validated by going to:  
<https://courses.cognitiveclass.ai/certificates/31bff712cc2345e28d5cef438e5c1445>

Certificate ID Number: 31bff712cc2345e28d5cef438e5c1445

February 7, 2022

<https://courses.cognitiveclass.ai/certificates/31bff712cc2345e28d5cef438e5c1445>



Feb 25, 2022

## Joydeep Saha

has successfully completed

### 计算导论与C语言基础

an online non-credit course authorized by Peking University and offered through Coursera

## COURSE CERTIFICATE



GE LI 季龙, PH.D.  
SCHOOL OF ELECTRONIC ENGINEERING AND COMPUTER SCIENCE  
PEKING UNIVERSITY

Verify at:  
[coursera.org/verify/EG9V4PSBRXBU](https://coursera.org/verify/EG9V4PSBRXBU)

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<https://coursera.org/verify/EG9V4PSBRXBU>



復旦大學  
FUDAN UNIVERSITY

TAO TAO

Feb 25, 2022

## Joydeep Saha

has successfully completed

### 游戏产业概论

an online non-credit course authorized by Fudan University, 上海戏剧学院 and offered through Coursera

## COURSE CERTIFICATE



胡东雁  
高级讲师、博士  
上海戏剧学院

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[coursera.org/verify/WNX93FZSFZH](https://coursera.org/verify/WNX93FZSFZH)

Coursera has confirmed the identity of this individual and their participation in the course.

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**MACQUARIE**  
University  
SYDNEY · AUSTRALIA

18-Feb-2022

## JOY DEEP SAHA

has successfully completed

### Solving Complex Problems Capstone

an online non-credit course authorized by Macquarie University and offered through Coursera

## COURSE CERTIFICATE



Director, Professional Learning and Engagement, School of Education – Faculty of Arts  
Academic Director, Academy of Continuing Professional Development in Education  
Chair, International Professional Development Association – Australia

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Coursera has confirmed the identity of this individual and their participation in the course.

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ILLINOIS

Feb 17, 2022

## Joydeep Saha

has successfully completed

### Data Visualization

an online non-credit course authorized by University of Illinois at Urbana-Champaign and offered through Coursera

## COURSE CERTIFICATE



John C. Hart  
Professor  
Department of Computer Science

Verify at:  
[coursera.org/verify/4XBQA5QMUZA5](https://coursera.org/verify/4XBQA5QMUZA5)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/4XBQA5QMUZA5>



EMORY  
UNIVERSITY

Feb 18, 2022

## JOY DEEP SAHA

has successfully completed

Qualitative Research Design

an online non-credit course authorized by Emory University and offered through Coursera

COURSE  
CERTIFICATE



A handwritten signature in black ink.

Karen Andes, PhD  
Associate Professor  
Hubert Department of Global Health  
Rollins School of Public Health

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[coursera.org/verify/NL6RKEEUQ7CP](https://coursera.org/verify/NL6RKEEUQ7CP)

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SECUREHOSPITALS.EU

COURSE  
CERTIFICATE

Feb 18, 2022

## Joydeep Saha

has successfully completed

Cybersecurity in Healthcare (Hospitals & Care Centres)

an online non-credit course authorized by Erasmus University Rotterdam and offered through Coursera



A handwritten signature in black ink.

Tessa A. P. Oomen  
PhD Candidate  
Media & Communication

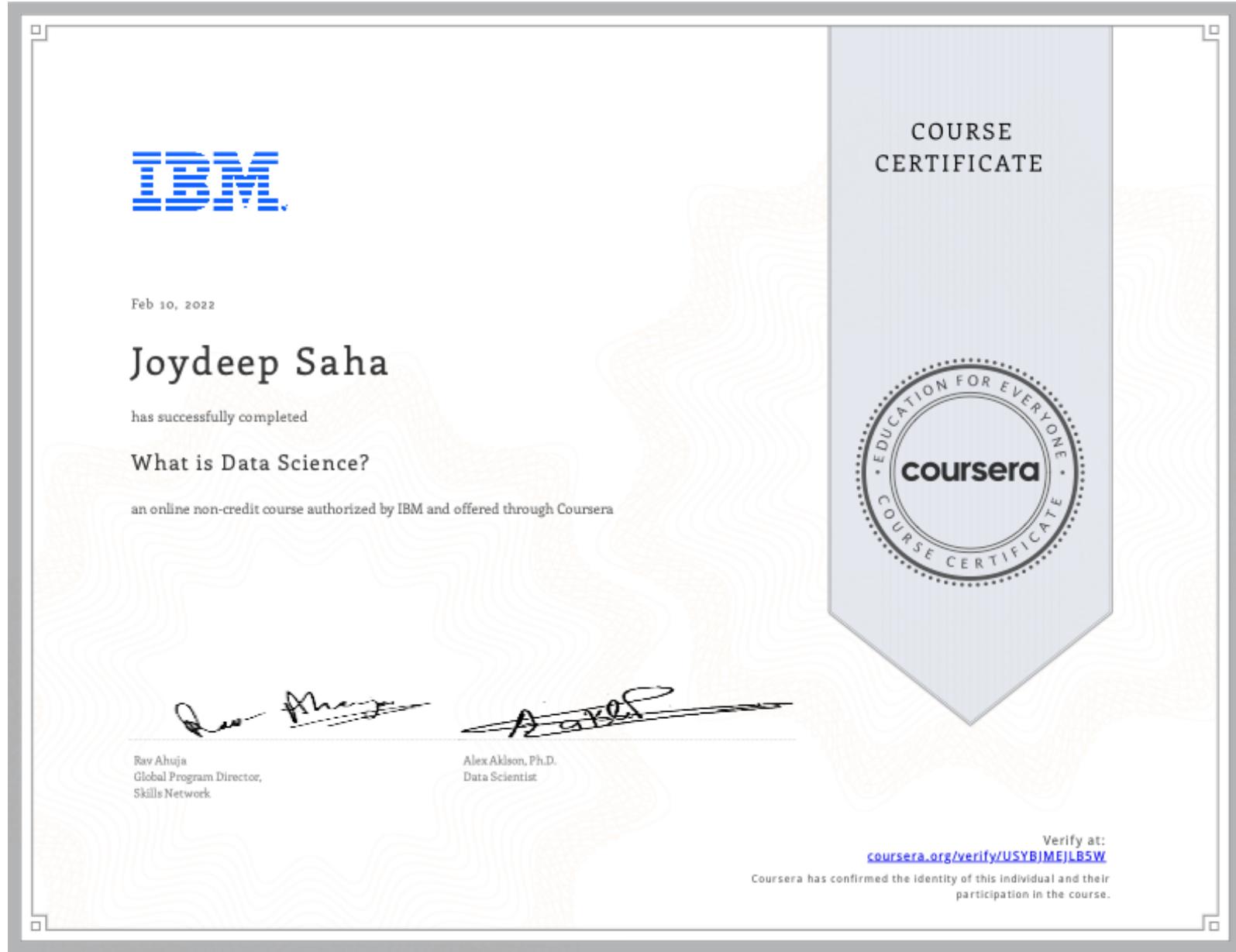
Jason H. Pridmore  
Associate Professor  
Media & Communication

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[coursera.org/verify/PDGUKPNJPV28](https://coursera.org/verify/PDGUKPNJPV28)

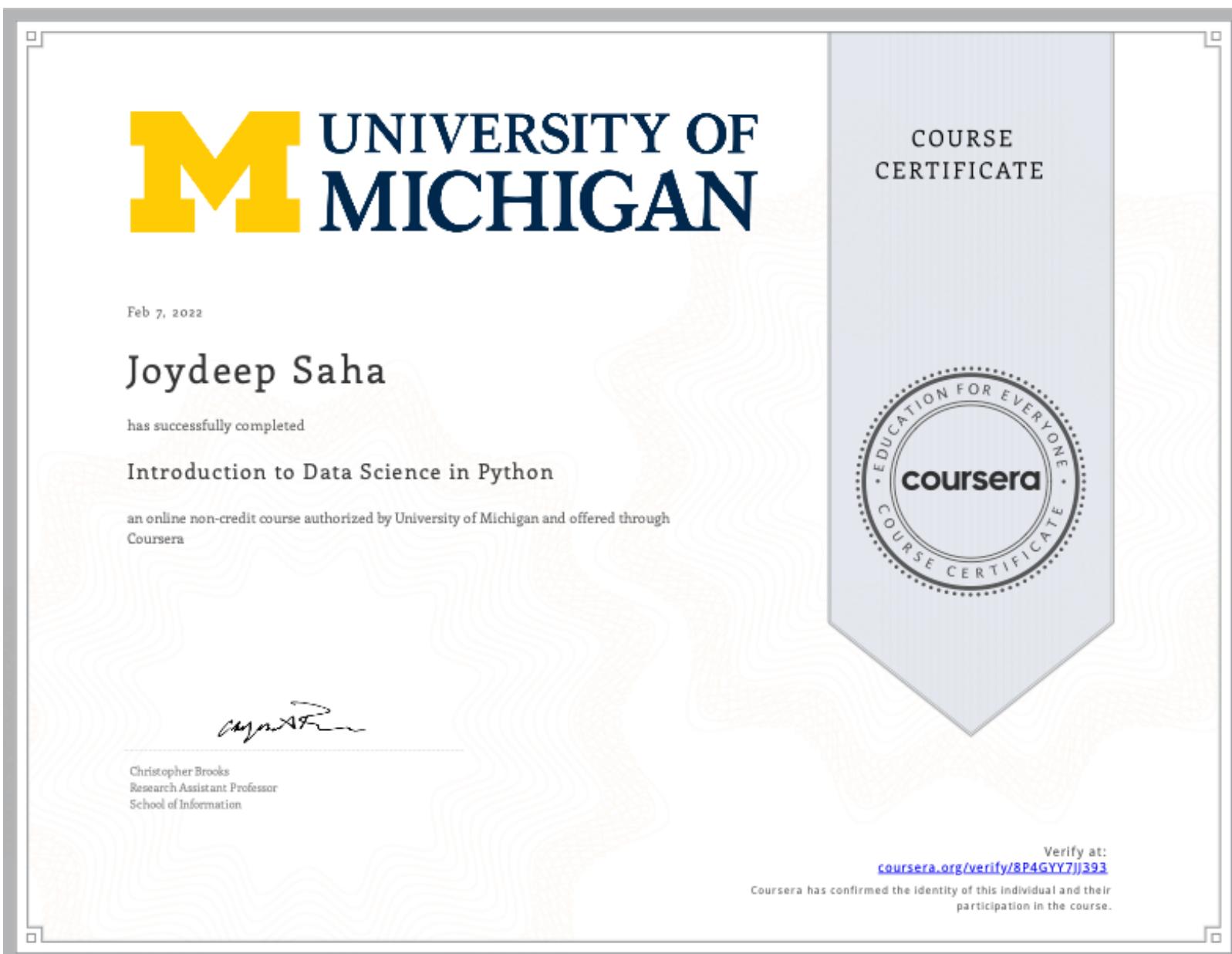
Coursera has confirmed the identity of this individual and their participation in the course.

This project has received funding from the European Union's Horizon 2020 Research and Innovation Action under Grant Agreement No. 82649.

[http://coursera.org/verify/PDGUKPNJPV28](https://coursera.org/verify/PDGUKPNJPV28)



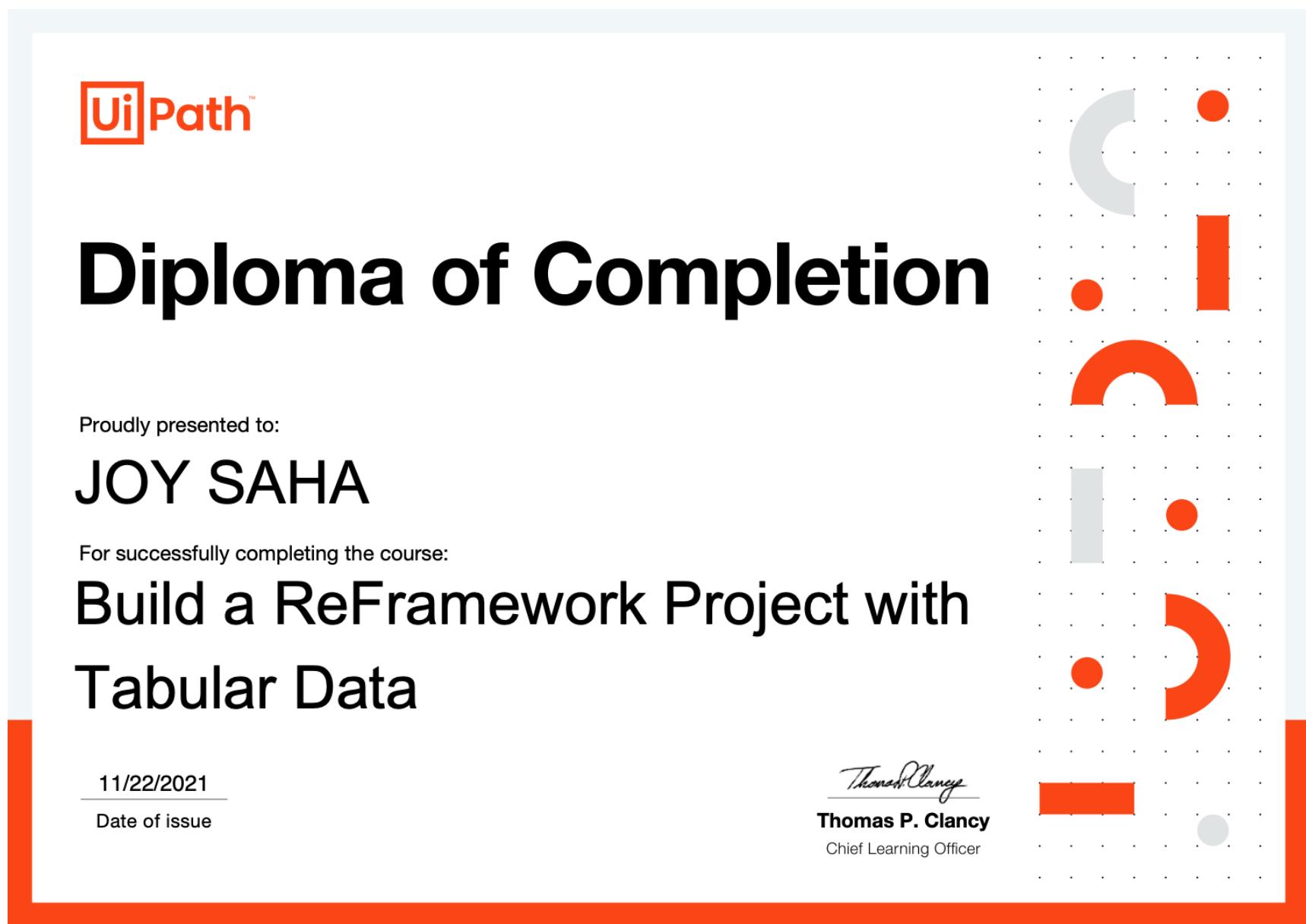
<https://coursera.org/verify/USYBJMEJLB5W>



<https://coursera.org/verify/8P4GYY7JJ393>



<http://coursera.org/verify/PLMR8APWR7GE>



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# Diploma of Completion

Proudly presented to:

**JOY SAHA**

For successfully completing the course:

**Get Started with UiPath Process  
Mining**

11/22/2021

Date of issue

**Thomas P. Clancy**

Chief Learning Officer

[https://cloud.contentraven.com/crdownloadfiles/index.aspx?act=8MH4sSWyowEaN0eXRAsty+A\\_\\_&id=7rd8iDo8mFg\\_](https://cloud.contentraven.com/crdownloadfiles/index.aspx?act=8MH4sSWyowEaN0eXRAsty+A__&id=7rd8iDo8mFg_)



# Diploma of Completion

Proudly presented to:

**JOY SAHA**

For successfully completing the course:

**UiPath Data Service**

02/21/2022

Date of issue

**Thomas P. Clancy**

Chief Learning Officer

[https://cloud.contentraven.com/crdownloadfiles/index.aspx?act=8MH4sSWyowEaN0eXRAsty+A\\_\\_&id=8BWmKF+z6iI\\_](https://cloud.contentraven.com/crdownloadfiles/index.aspx?act=8MH4sSWyowEaN0eXRAsty+A__&id=8BWmKF+z6iI_)



<https://coursera.org/verify/ZDKQ6Z8KBTKG>



<https://coursera.org/verify/C5NKEW9FRJGR>



COURSE  
CERTIFICATE



Feb 5, 2022

Joydeep Saha

has successfully completed

Cloud Computing Foundations

an online non-credit course authorized by Duke University and offered through Coursera

Noah Gift

Noah Gift  
Adjunct Professor  
Duke MIDS

Verify at:

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Coursera has confirmed the identity of this individual and their participation in the course.

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COURSE  
CERTIFICATE



Feb 5, 2022

Joydeep Saha

has successfully completed

Introduction to Genomic Technologies

an online non-credit course authorized by Johns Hopkins University and offered through Coursera

Steven Salzberg

Jeffrey Leek, PhD

Steven L. Salzberg, PhD  
McKusick-Nathans Institute of Genetic Medicine  
Johns Hopkins University

Department of Biostatistics  
Johns Hopkins Bloomberg School of Public Health

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This certificate does not affirm that this learner was enrolled as a student at Johns Hopkins University. It does not confer a JHU grade, course credit or degree; establish a relationship between this learner and JHU; enroll or register this learner at JHU or in any course offered by JHU; or entitle this learner to access or use resources beyond the online courses provided by Coursera.

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Feb 4, 2022

## Joydeep Saha

has successfully completed

### Trading Algorithms

an online non-credit course authorized by Indian School of Business and offered through Coursera

Prasanna Tantri  
Assistant Professor of Finance  
Executive Director, Center for Analytical Finance  
Indian School of Business

### COURSE CERTIFICATE



coursera

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The State University  
of New York

Jan 31, 2022

## Joydeep Saha

has successfully completed

### Blockchain Basics

an online non-credit course authorized by University at Buffalo, The State University of New York and offered through Coursera

Bina Ramamurthy  
Teaching Professor  
Computer Science and Engineering

### COURSE CERTIFICATE



coursera

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Feb 14, 2022

## Joydeep Saha

has successfully completed

### Software Development Processes and Methodologies

an online non-credit course authorized by University of Minnesota and offered through Coursera

## COURSE CERTIFICATE



Praveen Mittal  
Adjunct Professor  
College of Science and Engineering

Kevin Wendt  
Director of Graduate Studies, Software Engineering  
Department of Computer Science and Engineering

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Coursera has confirmed the identity of this individual and their participation in the course.

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15-Feb-2022

## JOY DEEP SAHA

has successfully completed

### Cybersecurity and the Internet of Things

an online non-credit course authorized by University System of Georgia and offered through Coursera

## COURSE CERTIFICATE



Dr. Traci Carte, Dr. Humayun Zafar, Herbert J Mattord, Ph.D., CISM, CISSP, CDP, Andrew Green, Ph.D.  
Information Systems  
University System of Georgia

Verify at:

[coursera.org/verify/XFFXP8PAQWWH](https://coursera.org/verify/XFFXP8PAQWWH)

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<https://coursera.org/verify/XFFXP8PAQWWH>



# ONLINE

Feb 4, 2022

Joydeep Saha

has successfully completed

**FinTech: Foundations, Payments, and Regulations**

an online non-credit course authorized by University of Pennsylvania and offered through Coursera

## COURSE CERTIFICATE



Christopher Geczy  
Adjunct Professor of Finance  
Academic Director, Wharton Wealth Management Initiative  
Academic Director, Jacobs Levy Equity Management Center for Quantitative Financial Research

Natasha Sarin  
Assistant Professor of Law  
University of Pennsylvania Law School

Verify at:  
[coursera.org/verify/KC33JK9YPTNN](https://coursera.org/verify/KC33JK9YPTNN)

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The online course named in this certificate may draw on material from courses taught on-campus, but it is not equivalent to an on-campus course. Participation in this online course does not constitute enrollment at the University of Pennsylvania. This certificate does not confer a University grade, course credit or degree, and it does not verify the identity of the learner.

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## COURSE CERTIFICATE



Feb 4, 2022

Joydeep Saha

has successfully completed

**AWS Cloud Practitioner Essentials**

an online non-credit course authorized by Amazon Web Services and offered through Coursera

Morgan Willis Blaine Sundrud  
Rudy Chetty

Rudy Chetty, Morgan Willis, Blaine Sundrud

Verify at:  
[coursera.org/verify/DSW8XYUAARA9](https://coursera.org/verify/DSW8XYUAARA9)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/DSW8XYUAARA9>



## COURSE CERTIFICATE



Feb 3, 2022

### Joydeep Saha

has successfully completed

#### Introduction to Python Programming

an online non-credit course authorized by University of Pennsylvania and offered through Coursera

A handwritten signature of Brandon Krakowsky.

Brandon Krakowsky  
Lecturer  
School of Engineering and Applied Science

Verify at:  
[coursera.org/verify/KMCMJ2ACNQNH](https://coursera.org/verify/KMCMJ2ACNQNH)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/KMCMJ2ACNQNH>



## COURSE CERTIFICATE



Jan 31, 2022

### Joydeep Saha

has successfully completed

#### Matrix Algebra for Engineers

an online non-credit course authorized by The Hong Kong University of Science and Technology and offered through Coursera

A handwritten signature of Jeffrey R. Chasnov.

Jeffrey R. Chasnov  
Professor  
Department of Mathematics

Verify at:  
[coursera.org/verify/FFBMWUE32RK6](https://coursera.org/verify/FFBMWUE32RK6)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/FFBMWUE32RK6>



## COURSE CERTIFICATE

Jan 8, 2022

### Joydeep Saha

has successfully completed

#### Machine Learning for Data Analysis

an online non-credit course authorized by Wesleyan University and offered through Coursera



Jen Rose  
Research Professor  
Psychology  
Wesleyan University

Professor Lisa Dierker  
Psychology  
Wesleyan University

Verify at:

[coursera.org/verify/YPH64VHJSC8J](https://coursera.org/verify/YPH64VHJSC8J)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/YPH64VHJSC8J>



## COURSE CERTIFICATE

Feb 3, 2022

### Joydeep Saha

has successfully completed

#### AWS Fundamentals: Building Serverless Applications

an online non-credit course authorized by Amazon Web Services and offered through Coursera



Rick Hurst, Jonathan Dion, Adam Becker, Bobbie Atristain, Wes Gruver  
AWS Training and Certification

Verify at:

[coursera.org/verify/3HUTLA5UQTKC](https://coursera.org/verify/3HUTLA5UQTKC)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/3HUTLA5UQTKC>



University of PENNSYLVANIA

Dec 29, 2021

## Joydeep Saha

has successfully completed

### Computational Thinking for Problem Solving

an online non-credit course authorized by University of Pennsylvania and offered through Coursera

## COURSE CERTIFICATE



*Susan B. Davidson*

Susan Davidson  
Weiss Professor  
Computer & Information Science

Verify at:  
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Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/BNKQKEFKEXP7>



Jan 26, 2022

## Joydeep Saha

has successfully completed

### AWS Computer Vision: Getting Started with GluonCV

an online non-credit course authorized by Amazon Web Services and offered through Coursera

## COURSE CERTIFICATE



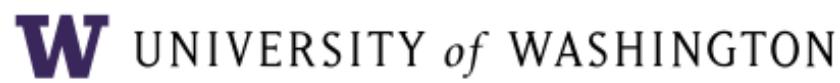
*Soji Adeshina, Thomas Delteil, Thomas Lane*

Soji Adeshina, Thomas Delteil, and Thomas Lane

Verify at:  
[coursera.org/verify/97A6HZXWEGX5](https://coursera.org/verify/97A6HZXWEGX5)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/97A6HZXWEGX5>



Dec 24, 2021

## Joydeep Saha

has successfully completed

Machine Learning Foundations: A Case Study Approach

a MOOC from the University of Washington and offered through Coursera

### COURSE CERTIFICATE



Emily Fox  
Amazon Professor of Machine Learning  
Statistics

Carlos Guestrin  
Amazon Professor of Machine Learning  
Computer Science and Engineering

Verify at:

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Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/KFJGF5XJPYKN>



Dec 26, 2021

## Joydeep Saha

has successfully completed

Exploratory Data Analysis for Machine Learning

an online non-credit course authorized by IBM and offered through Coursera

### COURSE CERTIFICATE



Mark J Grover  
Digital Content Delivery Lead  
IBM Data & AI Learning

Miguel Maldonado  
Machine Learning Curriculum Developer  
Data and AI Learning

Verify at:

[coursera.org/verify/46XC6LMC2QBA](https://coursera.org/verify/46XC6LMC2QBA)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/46XC6LMC2QBA>



23-Feb-2022

## JOY DEEP SAHA

has successfully completed

### Natural Language Processing and Capstone Assignment

an online non-credit course authorized by University of California, Irvine and offered through Coursera

COURSE  
CERTIFICATE



Dursun Delen

Julie Pai  
Assistant Director of Technology Programs  
UCI Division of Continuing Education

Verify at:

[coursera.org/verify/6U9URX8PQPHN](https://coursera.org/verify/6U9URX8PQPHN)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/6U9URX8PQPHN>



University of Colorado

Boulder | Colorado Springs | Denver | Anschutz Medical Campus

Feb 23, 2022

## Joydeep Saha

has successfully completed

### Algorithms for Searching, Sorting, and Indexing

an online non-credit course authorized by University of Colorado Boulder and offered through Coursera

COURSE  
CERTIFICATE



Sriram Sankaranarayanan, PhD  
Associate Professor of Computer Science  
University of Colorado Boulder

Verify at:

[coursera.org/verify/Z97UJBHMYWW6](https://coursera.org/verify/Z97UJBHMYWW6)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/Z97UJBHMYWW6>

# Stanford | ONLINE

Feb 23, 2022

## Joydeep Saha

has successfully completed

### Introduction to Mathematical Thinking

an online non-credit course authorized by Stanford University and offered through Coursera

COURSE  
CERTIFICATE



A handwritten signature of Keith Devlin.

Keith Devlin, Ph.D., D.Sc.  
Stanford University

Verify at:  
[coursera.org/verify/LUUVDFSZCGMR](https://coursera.org/verify/LUUVDFSZCGMR)

Coursera has confirmed the identity of this individual and their participation in the course.

[http://coursera.org/verify/LUUVDFSZCGMR](https://coursera.org/verify/LUUVDFSZCGMR)



Universiteit  
Leiden

Feb 23, 2022

## Joydeep Saha

has successfully completed

### Mind of the Universe - Genetic Privacy: should we be concerned?

an online non-credit course authorized by Universiteit Leiden and offered through Coursera

COURSE  
CERTIFICATE



A handwritten signature of Lotte Pet.

Lotte Pet  
Art historian and artist  
Faculty of Humanities, Leiden University

A handwritten signature of Robert Zwijnenberg.

Robert Zwijnenberg  
Professor of Art and Science Interactions  
Faculty of Humanities, Leiden University

Verify at:  
[coursera.org/verify/LAAZVFT6JABV](https://coursera.org/verify/LAAZVFT6JABV)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/LAAZVFT6JABV>



THE UNIVERSITY  
of EDINBURGH



23-Feb-2022

## JOY DEEP SAHA

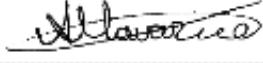
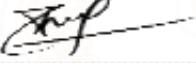
has successfully completed

### Code Yourself! An Introduction to Programming

an online non-credit course authorized by The University of Edinburgh and Universidad ORT Uruguay and offered through Coursera

## COURSE CERTIFICATE



   
Dr Areti Maratsaki  
School of Informatics  
The University of Edinburgh

Dr Inés Kereki  
Engineering School  
Universidad ORT Uruguay

Verify at:  
[coursera.org/verify/UUVXGCDQ6UZF](https://coursera.org/verify/UUVXGCDQ6UZF)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/UUVXGCDQ6UZF>



Feb 23, 2022

## JOY DEEP SAHA

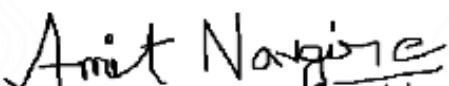
has successfully completed

### Azure Synapse SQL Pool - Implement Polybase

an online non-credit course authorized by Coursera Project Network and offered through Coursera

## COURSE CERTIFICATE



  
AMIT NAVGIRE  
CLOUD DATA ARCHITECT

Verify at:  
[coursera.org/verify/THFN4KT5PMXW](https://coursera.org/verify/THFN4KT5PMXW)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/THFN4KT5PMXW>



**MACQUARIE**  
University  
SYDNEY · AUSTRALIA

23-Feb-2022

## JOY DEEP SAHA

has successfully completed

**Business intelligence and data analytics: Generate insights**

an online non-credit course authorized by Macquarie University and offered through Coursera

COURSE  
CERTIFICATE



*C Stead*

Connor Stead  
Department of Actuarial Studies and Business Analytics  
Macquarie Business School  
Sydney, Australia

Verify at:  
[coursera.org/verify/W2R5HXV6S7TU](https://coursera.org/verify/W2R5HXV6S7TU)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/W2R5HXV6S7TU>

# coursera

Feb 24, 2022

## JOY DEEP SAHA

has successfully completed

**Build a computer vision app with Azure Cognitive Services**

an online non-credit course authorized by Microsoft and offered through Coursera

COURSE  
CERTIFICATE



*Catalin Popa*

Catalin Popa  
Microsoft Azure MVP  
Microsoft MCT

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[coursera.org/verify/4RRBVR9L6MZU](https://coursera.org/verify/4RRBVR9L6MZU)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/4RRBVR9L6MZU>



# UNIVERSITY OF ALBERTA

Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

### Introduction to Software Product Management

an online non-credit course authorized by University of Alberta and offered through Coursera

## COURSE CERTIFICATE



Kenny Wong  
Associate Professor  
Computing Science, Faculty of Science

Verify at:  
[coursera.org/verify/3XAPEFC8FJDJ](https://coursera.org/verify/3XAPEFC8FJDJ)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/3XAPEFC8FJDJ>



Feb 24, 2022

## JOY DEEP SAHA

has successfully completed

### Build a Data Science Web App with Streamlit and Python

an online non-credit course authorized by Coursera Project Network and offered through Coursera

## COURSE CERTIFICATE



Snehan Kekre  
Instructor  
Machine Learning and Data Science

Verify at:  
[coursera.org/verify/KF56NC27U886](https://coursera.org/verify/KF56NC27U886)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/KF56NC27U886>



UNIVERSITY OF NORTH TEXAS®

Feb 23, 2022

## JOY DEEP SAHA

has successfully completed

Predicting Credit Card Fraud with R

an online non-credit course authorized by University of North Texas and offered through Coursera

### COURSE CERTIFICATE



John Garcia  
Clinical Assistant Professor  
Advanced Data Analytics

Verify at:  
[coursera.org/verify/4HW8FQ3BM3US](https://coursera.org/verify/4HW8FQ3BM3US)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/4HW8FQ3BM3US>



EINDHOVEN  
UNIVERSITY OF  
TECHNOLOGY

Feb 22, 2022

## Joydeep Saha

has successfully completed with honors

Process Mining: Data science in Action

an online non-credit course authorized by Eindhoven University of Technology and offered through Coursera

### COURSE CERTIFICATE

WITH HONORS



Professor dr. ir. Wil van der Aalst  
Department of Mathematics & Computer Science  
Eindhoven University of Technology (TU/e)  
Eindhoven, the Netherlands

Verify at:  
[coursera.org/verify/5FGR3ACL85SA](https://coursera.org/verify/5FGR3ACL85SA)

Coursera has confirmed the identity of this individual and their participation in the course.

This course represents a study load of 2 ECTS (3 ECTS in case of a certificate with honors).

<http://coursera.org/verify/5FGR3ACL85SA>



## COURSE CERTIFICATE

WITH HONORS

Feb 24, 2022

### JOY DEEP SAHA

has successfully completed with honors

**Introduction to Mechanical Engineering Design  
and Manufacturing with Fusion 360**

an online non-credit course authorized by Autodesk and offered through Coursera



Andrew Anagnost, President and Chief Executive Officer of Autodesk, Inc.

Verify at:  
[coursera.org/verify/4TKGZR4SFZND](https://coursera.org/verify/4TKGZR4SFZND)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/4TKGZR4SFZND>



## COURSE CERTIFICATE



Feb 25, 2022

### JOY DEEP SAHA

has successfully completed

**Human-Centered Design: an Introduction**

an online non-credit course authorized by University of California San Diego and offered through Coursera

Professor Scott Klemmer  
Cognitive Science and Computer Science & Engineering  
University of California, San Diego

Verify at:  
[coursera.org/verify/5C4XVX8K95GF](https://coursera.org/verify/5C4XVX8K95GF)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/5C4XVX8K95GF>



COURSE  
CERTIFICATE



Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

### Programming Languages, Part A

a MOOC from the University of Washington and offered through Coursera

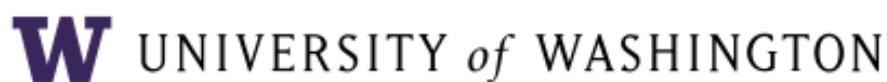


Dan Grossman  
Professor  
Department of Computer Science & Engineering  
University of Washington

Verify at:  
[coursera.org/verify/KGRQSKU5AVDB](https://coursera.org/verify/KGRQSKU5AVDB)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/KGRQSKU5AVDB>



COURSE  
CERTIFICATE



Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

### Programming Languages, Part B

a MOOC from the University of Washington and offered through Coursera



Dan Grossman  
Professor  
Department of Computer Science & Engineering  
University of Washington

Verify at:  
[coursera.org/verify/6AN4TFG8HE6V](https://coursera.org/verify/6AN4TFG8HE6V)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/6AN4TFG8HE6V>



Feb 25, 2022

## JOY DEEP SAHA

has successfully completed with honors

**Foundations for Big Data Analysis with SQL**

an online non-credit course authorized by Cloudera and offered through Coursera

Glynn Durham  
Senior Instructor  
Cloudera

### COURSE CERTIFICATE

WITH HONORS



Verify at:

[coursera.org/verify/28QXYF7AGND3](https://coursera.org/verify/28QXYF7AGND3)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/28QXYF7AGND3>



SUNG KYUN KWAN  
UNIVERSITY

Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

**Machine Learning Algorithms**

an online non-credit course authorized by Sungkyunkwan University and offered through Coursera

Jaekwang KIMAssistant ProfessorSchool of Convergence at College of Computing and Informatics

### COURSE CERTIFICATE



Verify at:

[coursera.org/verify/67VPV4YV2Q4S](https://coursera.org/verify/67VPV4YV2Q4S)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/67VPV4YV2Q4S>



COURSE  
CERTIFICATE

Feb 24, 2022

## JOY DEEP SAHA

has successfully completed

Introduction to CAD, CAM, and Practical CNC  
Machining

an online non-credit course authorized by Autodesk and offered through Coursera



Andrew Anagnost, President and Chief Executive Officer of Autodesk, Inc.

Verify at:  
[coursera.org/verify/AR2UASGAHXZY](https://coursera.org/verify/AR2UASGAHXZY)

Coursera has confirmed the identity of this individual and their  
participation in the course.

<https://coursera.org/verify/AR2UASGAHXZY>



COURSE  
CERTIFICATE

Feb 23, 2022

## JOY DEEP SAHA

has successfully completed

OpenVINO Beginner: Building a Crossroad AI  
Camera

an online non-credit course authorized by Intel and offered through Coursera



Moloti T Nakampe  
Software Innovator  
Intel Corporation

Verify at:  
[coursera.org/verify/CEZW2494P6BY](https://coursera.org/verify/CEZW2494P6BY)

Coursera has confirmed the identity of this individual and their  
participation in the course.

<https://coursera.org/verify/CEZW2494P6BY>

**NYU****TANDON SCHOOL  
OF ENGINEERING**

Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

### Introduction to Cyber Attacks

an online non-credit course authorized by New York University and offered through Coursera

**COURSE  
CERTIFICATE***Edward G. Amoroso*

Dr. Edward G. Amoroso  
Research Professor, NYU and CEO, TAG Cyber LLC  
Computer Science

Verify at:  
[coursera.org/verify/EU94YTAUTGC4](https://coursera.org/verify/EU94YTAUTGC4)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/EU94YTAUTGC4>

**ILLINOIS**

Feb 23, 2022

## JOY DEEP SAHA

has successfully completed

### Analyze City Data Using R and Tableau

an online non-credit course authorized by University of Illinois at Urbana-Champaign and offered through Coursera

**COURSE  
CERTIFICATE***[Signature]*  
Director of Margolis Market Information Lab  
Department of Finance - Gies College of Business

Verify at:  
[coursera.org/verify/FXZ383XTVU5L](https://coursera.org/verify/FXZ383XTVU5L)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/FXZ383XTVU5L>



University of Colorado

Boulder | Colorado Springs | Denver | Anschutz Medical Campus

COURSE  
CERTIFICATE



Feb 25, 2022

## Joydeep Saha

has successfully completed

### Data Science as a Field

an online non-credit course authorized by University of Colorado Boulder and offered through Coursera

Jane Wall  
Faculty Director of Data Science Programs  
University of Colorado Boulder

Verify at:  
[coursera.org/verify/GX6QQSCV5WGW](https://coursera.org/verify/GX6QQSCV5WGW)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/GX6QQSCV5WGW>



COURSE  
CERTIFICATE



Feb 23, 2022

## JOY DEEP SAHA

has successfully completed

### Интерактивные диаграммы в Plotly: круговые и sunburst

an online non-credit course authorized by E-Learning Development Fund and offered through Coursera

Задойный Алексей Владимирович  
служба развития внешних сайтов

Verify at:  
[coursera.org/verify/J22JFPG8H3H4](https://coursera.org/verify/J22JFPG8H3H4)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/J22JFPG8H3H4>

UC SANTA CRUZ

COURSE  
CERTIFICATE

WITH HONORS

Feb 25, 2022

## JOY DEEP SAHA

has successfully completed with honors

### Bayesian Statistics: From Concept to Data Analysis

an online non-credit course authorized by University of California, Santa Cruz and offered through Coursera



Herbert Lee  
Professor  
Statistics

Verify at:  
[coursera.org/verify/JQG6A32886MZ](https://coursera.org/verify/JQG6A32886MZ)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/JQG6A32886MZ>

THE  
NEW  
SCHOOL

# PARSONS

Feb 24, 2022

## JOY DEEP SAHA

has successfully completed

### Artificial Creativity

an online non-credit course authorized by Parsons School of Design, The New School and offered through Coursera

COURSE  
CERTIFICATE



Mariana Amatullo, Vice Provost for Global Executive Education & Online Strategic Initiatives

Verify at:  
[coursera.org/verify/K68U7KUCD98J](https://coursera.org/verify/K68U7KUCD98J)

Coursera has confirmed the identity of this individual and their participation in the course.

This not-for-credit course was offered as part of the Parsons School of Design Creativity & A.I. Specialization.

<http://coursera.org/verify/K68U7KUCD98J>



COURSE  
CERTIFICATE



Feb 24, 2022

## JOY DEEP SAHA

has successfully completed

### Modern Supervisor Skills

an online non-credit course authorized by Institute of Certified Professional Managers and offered through Coursera

Steve Van Oostenbrugge, PhD, MBA, CM  
ICPM Executive Director

Verify at:

[coursera.org/verify/KFVHZZN9KY9E](https://coursera.org/verify/KFVHZZN9KY9E)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/KFVHZZN9KY9E>



COURSE  
CERTIFICATE



Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

### Practical Python for AI Coding 1

an online non-credit course authorized by Korea Advanced Institute of Science and Technology(KAIST) and offered through Coursera

Verify at:  
[coursera.org/verify/MBQR55H7GLFD](https://coursera.org/verify/MBQR55H7GLFD)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/MBQR55H7GLFD>



## COURSE CERTIFICATE



Feb 23, 2022

### Joydeep Saha

has successfully completed

#### Fibonacci Numbers and the Golden Ratio

an online non-credit course authorized by The Hong Kong University of Science and Technology and offered through Coursera

Jeffrey R. Chasnov  
Professor  
Department of Mathematics

Verify at:

[coursera.org/verify/MTWQCPFP2YS3](https://coursera.org/verify/MTWQCPFP2YS3)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/MTWQCPFP2YS3>

UC SANTA CRUZ

## COURSE CERTIFICATE



Feb 25, 2022

### Joydeep Saha

has successfully completed

#### C for Everyone: Programming Fundamentals

an online non-credit course authorized by University of California, Santa Cruz and offered through Coursera

Professor Ira Pohl, PhD  
Baskin School of Engineering  
University of California, Santa Cruz

Verify at:

[coursera.org/verify/XFQWB6CBHYKV](https://coursera.org/verify/XFQWB6CBHYKV)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/XFQWB6CBHYKV>



COURSE  
CERTIFICATE



Feb 24, 2022

## JOY DEEP SAHA

has successfully completed

### Fundamentos de TypeScript

an online non-credit course authorized by Universidad de los Andes and offered through Coursera

Juan Pablo Reyes Gómez, Profesor de cátedra, Ingeniería de sistemas y computación, Facultad de ingeniería  
Rubby Casillas, Profesora titular y decana, Ingeniería de sistemas y computación, Facultad de ingeniería  
Jose Joaquin Bocanegra, Asistente postdoctoral, Ingeniería de sistemas y computación, Facultad de ingeniería

Verify at:  
[coursera.org/verify/SZNL96KYUSJT](https://coursera.org/verify/SZNL96KYUSJT)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/SZNL96KYUSJT>



This is to certify that

## JOY DEEP SAHA

successfully completed and received a passing grade in

### Data Visualization with R

(DV0151EN, provided by IBM)

A course on cognitiveclass.ai  
Powered by IBM Developer Skills Network.

Issued by  
Cognitive Class

Raul F. Chong  
Raul F. Chong

February 24, 2022

Authenticity of this certificate can be validated by going to:

<https://courses.cognitiveclass.ai/certificates/420e8118a8ec4a8f95ef84268780489f>



Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

### SQL for Data Science

an online non-credit course authorized by University of California, Davis and offered through Coursera

### COURSE CERTIFICATE



Sadie St. Lawrence  
AI Strategy Consultant for Accenture Applied Intelligence  
Founder of Women in Data (WID)  
Instructor, University of California, Davis Extension

Verify at:

[coursera.org/verify/UAFDFNC2R3UK](https://coursera.org/verify/UAFDFNC2R3UK)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/UAFDFNC2R3UK>



Feb 24, 2022

## JOY DEEP SAHA

has successfully completed

### Building Cloud Services with the Java Spring Framework

an online non-credit course authorized by Vanderbilt University and offered through Coursera

### COURSE CERTIFICATE



Dr. Jules White  
Associate Professor  
Department of Electrical Engineering and Computer Science  
Vanderbilt University

Dr. Douglas C. Schmidt  
Professor of Computer Science  
Vanderbilt University

Verify at:

[coursera.org/verify/VVFS77S296NE](https://coursera.org/verify/VVFS77S296NE)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/VVFS77S296NE>



Dec 24, 2021

## Joydeep Saha

has successfully completed

**Mathematics for Machine Learning: Linear Algebra**

an online non-credit course authorized by Imperial College London and offered through Coursera

### COURSE CERTIFICATE





David Dye, Samuel J. Cooper, and A. Freddie Page

Verify at:  
[coursera.org/verify/SA39X4XFHNQ2](https://coursera.org/verify/SA39X4XFHNQ2)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/SA39X4XFHNQ2>



Dec 25, 2021

## Joydeep Saha

has successfully completed

**Microsoft Azure Machine Learning**

an online non-credit course authorized by Microsoft and offered through Coursera

### COURSE CERTIFICATE





Betty Vandenbosch  
Chief Content Officer

Verify at:  
[coursera.org/verify/G5DMZUFF24KT](https://coursera.org/verify/G5DMZUFF24KT)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/G5DMZUFF24KT>



COURSE  
CERTIFICATE

Dec 11, 2021

## Joydeep Saha

has successfully completed

Machine Learning Foundations for Product  
Managers

an online non-credit course authorized by Duke University and offered through Coursera



Jon Reischneider  
Director, Master of Engineering in AI for Product Innovation  
Duke University's Pratt School of Engineering

Verify at:  
[coursera.org/verify/XYUEGKVQUMXD](https://coursera.org/verify/XYUEGKVQUMXD)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/XYUEGKVQUMXD>



COURSE  
CERTIFICATE

Oct 30, 2021

## Joydeep Saha

has successfully completed

Getting Started with AWS Machine Learning

an online non-credit course authorized by Amazon Web Services and offered through  
Coursera



Blaine Sundrud  
Senior Technical Trainer  
AWS Training and Certification

Verify at:  
[coursera.org/verify/HNDFERKZGZEN](https://coursera.org/verify/HNDFERKZGZEN)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/HNDFERKZGZEN>



Oct 30, 2021

## Joydeep Saha

has successfully completed

### Python Data Structures

an online non-credit course authorized by University of Michigan and offered through Coursera

A handwritten signature in black ink that appears to read "Charles Severance".

Charles Severance  
Clinical Professor, School of Information  
University of Michigan

### COURSE CERTIFICATE



Verify at:  
[coursera.org/verify/LZ79UZHRTQ3M](https://coursera.org/verify/LZ79UZHRTQ3M)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/LZ79UZHRTQ3M>



Oct 23, 2020

## Joydeep Saha

has successfully completed

### Industrial IoT on Google Cloud

an online non-credit course authorized by Google Cloud and offered through Coursera

A handwritten signature in black ink that appears to read "Joydeep Saha".

### COURSE CERTIFICATE



Verify at:  
[coursera.org/verify/EB2X49UB4NHN](https://coursera.org/verify/EB2X49UB4NHN)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/EB2X49UB4NHN>



Mar 28, 2021

## Joydeep Saha

has successfully completed

### Building Arduino robots and devices

an online non-credit course authorized by Moscow Institute of Physics and Technology  
and offered through Coursera

## COURSE CERTIFICATE



*Alexey Perepelkin*

Алексей Перепелкин  
Руководитель направления развития цифрового творчества  
ЦИОТ МФТИ

*Dmitry Savitskiy*

Дмитрий Савицкий  
Старший преподаватель  
ЛИОТ МФТИ

Verify at:

[coursera.org/verify/LTA9F3XLTRSB](https://coursera.org/verify/LTA9F3XLTRSB)

Coursera has confirmed the identity of this individual and their  
participation in the course.

<https://coursera.org/verify/LTA9F3XLTRSB>



Aug 23, 2020

## Joydeep Saha

has successfully completed

### Google Cloud Big Data and Machine Learning Fundamentals

an online non-credit course authorized by Google Cloud and offered through Coursera

## COURSE CERTIFICATE



*Google Cloud Training*

Verify at:  
[coursera.org/verify/Q2SATDTDQHN2](https://coursera.org/verify/Q2SATDTDQHN2)

Coursera has confirmed the identity of this individual and their  
participation in the course.

<https://coursera.org/verify/Q2SATDTDQHN2>



UNIVERSITY  
OF LONDON



COURSE  
CERTIFICATE



Mar 28, 2021

## Joydeep Saha

has successfully completed

### Information Security: Context and Introduction

an online non-credit course authorized by University of London and Royal Holloway, University of London and offered through Coursera

Peter Komisarczuk, Keith M. Martin, Dr. Jorge Blasco Alis

Verify at:  
[coursera.org/verify/P9N9DS8CKYLG](https://coursera.org/verify/P9N9DS8CKYLG)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/P9N9DS8CKYLG>



COURSE  
CERTIFICATE



Aug 17, 2020

## Joydeep Saha

has successfully completed

### Introduction to Cybersecurity Tools & Cyber Attacks

an online non-credit course authorized by IBM and offered through Coursera

Coreen Ryskamp  
Program Manager  
IBM Security Learning Services

Verify at:  
[coursera.org/verify/EDTWKXSQYPC7](https://coursera.org/verify/EDTWKXSQYPC7)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/EDTWKXSQYPC7>



UNIVERSITY OF  
MARYLAND

Feb 10, 2022

## JOY DEEP SAHA

has successfully completed

**Combining and Analyzing Complex Data**

an online non-credit course authorized by University of Maryland, College Park and offered through Coursera

COURSE  
CERTIFICATE



*Richard L. Valliant*

Richard Valliant, Ph.D.  
Research Professor  
University of Michigan

Verify at:  
[coursera.org/verify/N9MHHXZHZR4](https://coursera.org/verify/N9MHHXZHZR4)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/N9MHHXZHZR4>



Diploma

This is to certify that

JOY DEEP SAHA

Successfully obtained

Diploma in Computer Networking - Revised



1480-17120717

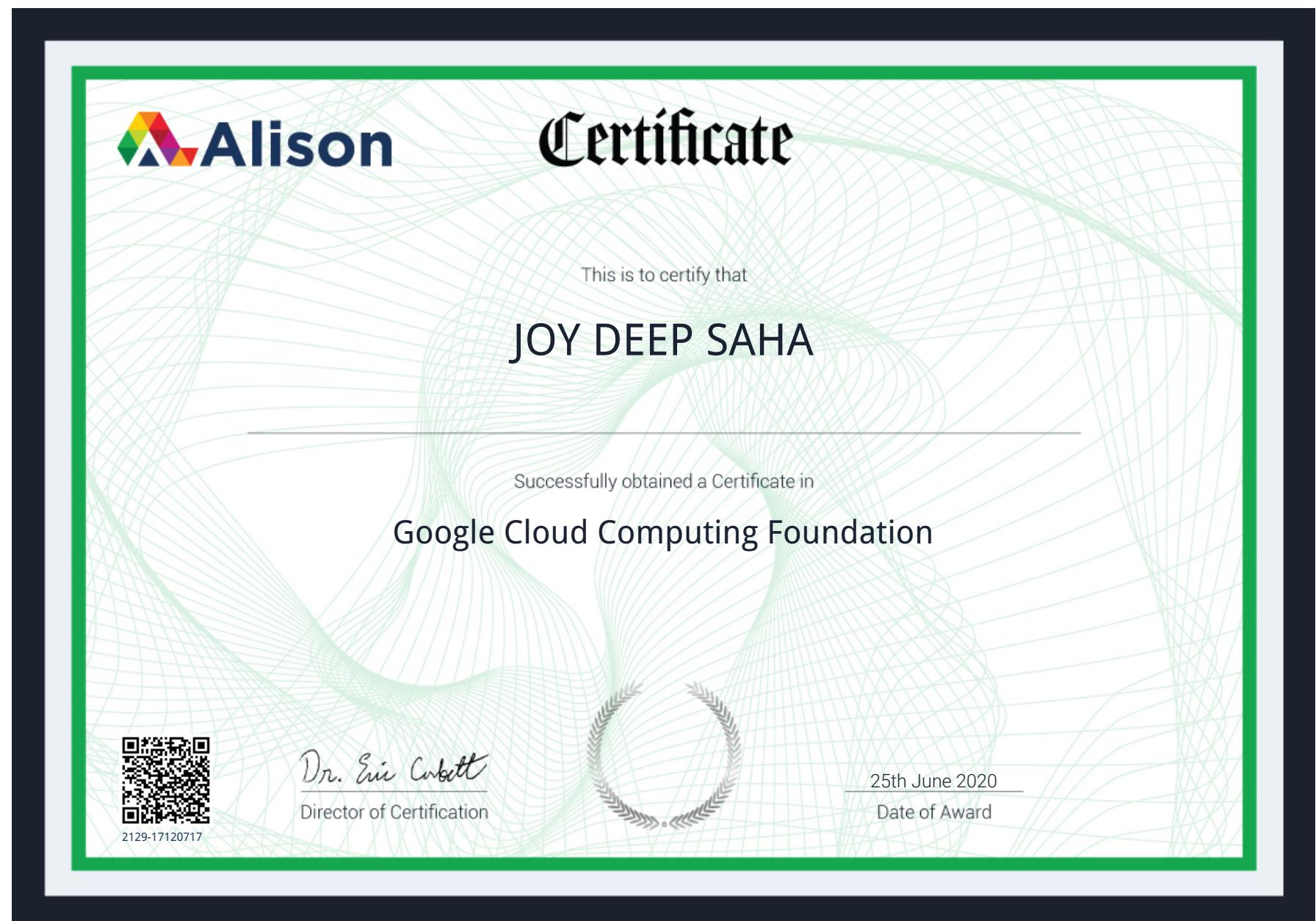
Maeve Richardson

Director of Certification



26th June 2020

Date of Award



<https://learndigital.withgoogle.com/link/1qsdpcedm9s>

ID : RDY 243 LZX



801-750 West Pender Street Vancouver BC V6C 2T8

The Board of Directors of the  
Corporate Finance Institute® have conferred on

*JOY DÉEPMALA*

who has pursued studies and completed all  
the requirements for the certificate of

## Refinitiv Workspace Essentials

National Registry of CPE Sponsors Number: 139079

Instructional Delivery Method: QAS Self Study

Specialized Knowledge: 0.5 credits.



Certificate number  
132619077

In accordance with the standards of the National Registry of CPE Sponsors,  
CPE credits have been granted based on a 50-minute hour.

Chair of the Board

Director

Director

Mar 28, 2021

<https://www.credential.net/30653748>



801-750 West Pender Street, Vancouver BC V6C 2T8

The Board of Directors of the  
Corporate Finance Institute® have conferred on

*JOY DÉEPMALA*

who has pursued studies and completed all  
the requirements for the certificate of

## Economics for Capital Markets

National Registry of CPE Sponsors Number: 139079

Instructional Delivery Method: QAS Self Study

Finance: 3.0 credits.



Certificate number  
131762954

In accordance with the standards of the National Registry of CPE Sponsors,  
CPE credits have been granted based on a 50-minute hour.

Chair of the Board

Director

Director

Mar 24, 2021

<https://www.credential.net/30461189>



801-750 West Pender Street Vancouver BC V6C 2T8

The Board of Directors of the  
Corporate Finance Institute® have conferred on

*JOY DED SAKA*

who has pursued studies and completed all  
the requirements for the certificate of

## Foreign Exchange Fundamentals

National Registry of CPE Sponsors Number: 139079

Instructional Delivery Method: QAS Self Study

Finance: 2.0 credits.



Certificate number  
132616743

In accordance with the standards of the National Registry of CPE Sponsors,  
CPE credits have been granted based on a 50-minute hour.

Chair of the Board

Director

Director

Mar 28, 2021

<https://www.credential.net/30654255>



801-750 West Pender Street, Vancouver BC V6C 2T8

The Board of Directors of the  
Corporate Finance Institute® have conferred on

*JOY DED SAKA*

who has pursued studies and completed all  
the requirements for the certificate of

## Math Fundamentals for Capital Markets

National Registry of CPE Sponsors Number: 139079

Instructional Delivery Method: QAS Self Study

Finance: 1.0 credits.



Certificate number  
132619915

In accordance with the standards of the National Registry of CPE Sponsors,  
CPE credits have been granted based on a 50-minute hour.

Chair of the Board

Director

Director

Mar 28, 2021

<https://www.credential.net/30650867>

Apart From the course certification, I would like to add one honour certificate recently received.

F- 2021-EDB89DC5F39

20. December 2021



## International Youth Math Challenge

### Gold Honour

presented to

# Joy Deep Saha

India

for participating in the final round of the International Youth Math Challenge 2021. The final round was a supervised exam of twenty questions. Solving them required comprehensive skills in several mathematical areas.  
The participant scored 19 points and was placed among the top 3% of all participants.

*F.Schneider*

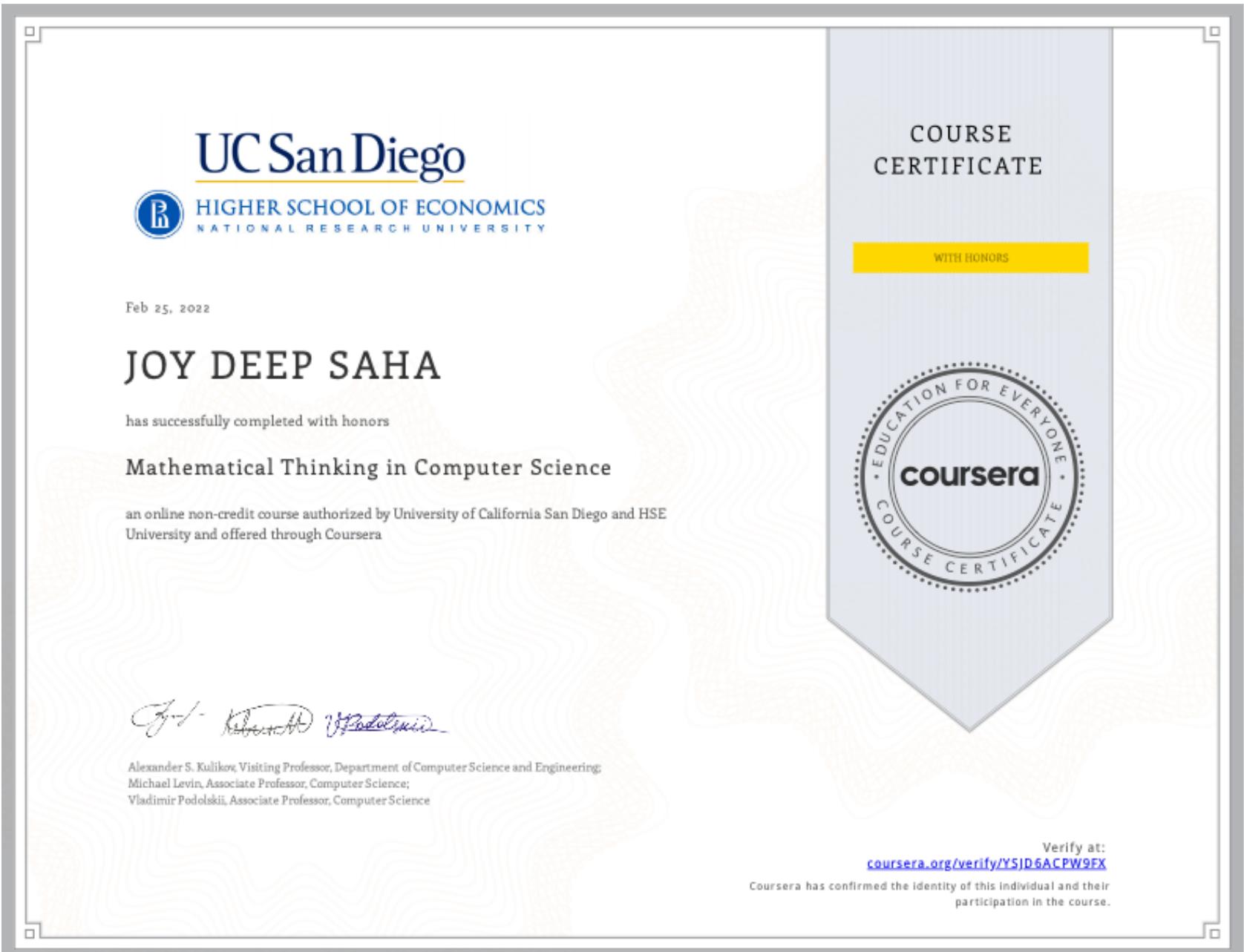
Fabian Schneider, International Coordinator

*Ranli Aly*

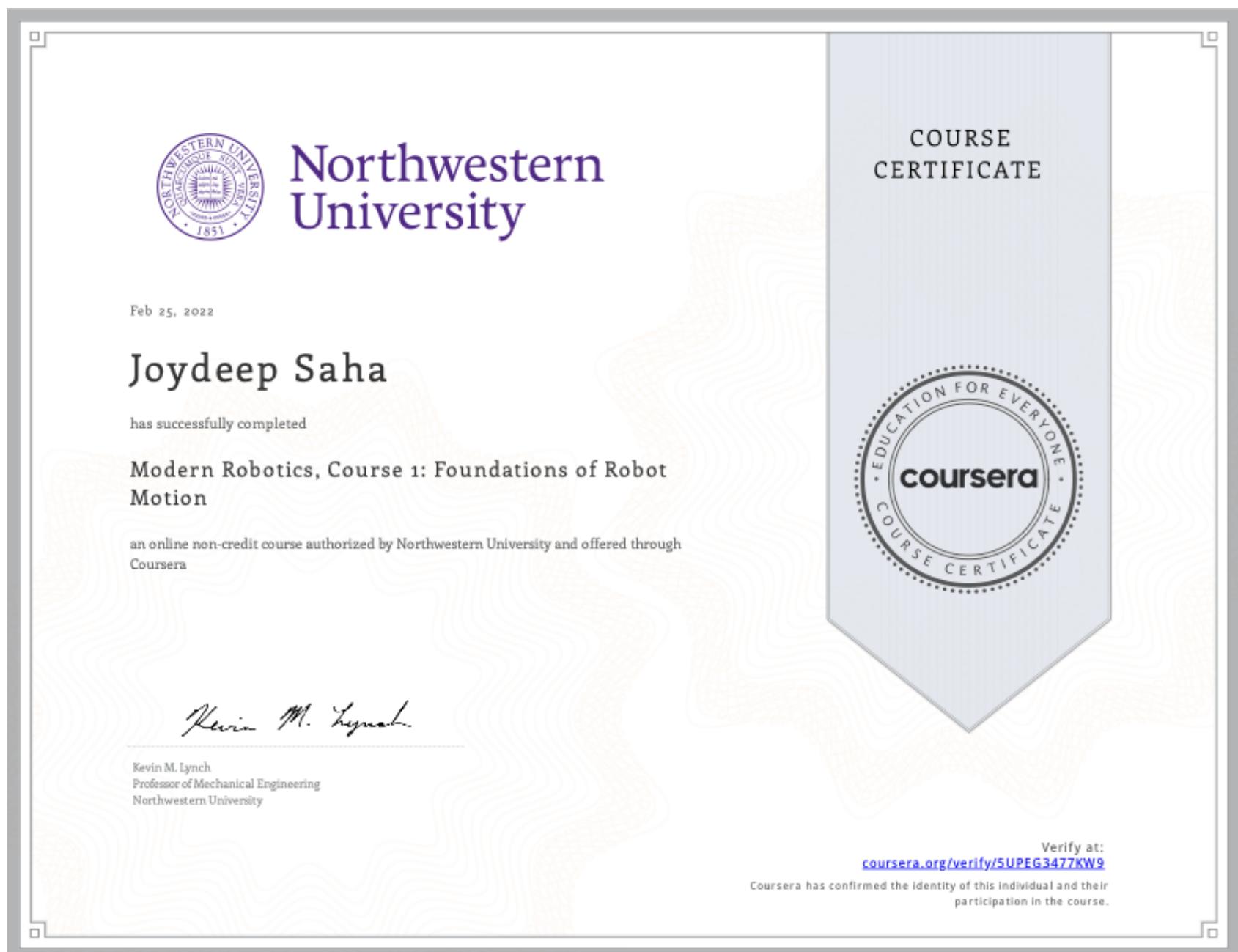
Ranli Aly, fpublic Relations Manager

<https://iymc.info/en/verify>

ID : F-2021-EDB89DC5F39



<https://coursera.org/verify/YSJD6ACPW9FX>



<https://coursera.org/verify/SUPEG3477KW9>



Feb 25, 2022

## Joydeep Saha

has successfully completed

### Mathematics for Machine Learning: Linear Algebra

an online non-credit course authorized by Imperial College London and offered through Coursera

## COURSE CERTIFICATE





David Dye, Samuel J. Cooper, and A. Freddie Page

Verify at:

[coursera.org/verify/GULN8QCCFD27](https://coursera.org/verify/GULN8QCCFD27)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/GULN8QCCFD27>



# ONLINE

Apr 6, 2022

## JOY DEEP SAHA

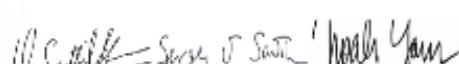
has successfully completed

### Operations Analytics

an online non-credit course authorized by University of Pennsylvania and offered through Coursera

## COURSE CERTIFICATE





Senthil Veeraraghavan, Sergei Savin, Noah Gans  
Information and Decisions  
The Wharton School

Verify at:

[coursera.org/verify/EBX8B74MLGJW](https://coursera.org/verify/EBX8B74MLGJW)

Coursera has confirmed the identity of this individual and their participation in the course.

The online course named in this certificate may draw on material from courses taught on-campus, but it is not equivalent to an on-campus course. Participation in this online course does not constitute enrollment at the University of Pennsylvania. This certificate does not confer a University grade, course credit or degree, and it does not verify the identity of the learner.

<http://coursera.org/verify/EBX8B74MLGJW>



Feb 21, 2022

## Joydeep Saha

has successfully completed

### Statistical Inference

an online non-credit course authorized by Johns Hopkins University and offered through Coursera

### COURSE CERTIFICATE



Jeff Leek, PhD; Roger Peng, PhD; Brian Caffo, PhD  
Department of Biostatistics  
Johns Hopkins Bloomberg School of Public Health

Verify at:  
[coursera.org/verify/PLMR8APWR7GE](https://coursera.org/verify/PLMR8APWR7GE)

Coursera has confirmed the identity of this individual and their participation in the course.  
This certificate does not affirm that this learner was enrolled as a student at Johns Hopkins University. It does not confer a JHU grade, course credit or degree; establish a relationship between this learner and JHU; enroll or register this learner at JHU or in any course offered by JHU; or entitle this learner to access or use resources beyond the online courses provided by Coursera.

[http://coursera.org/verify/PLMR8APWR7GE](https://coursera.org/verify/PLMR8APWR7GE)



# Diploma of Completion

Proudly presented to:

## JOY SAHA

For successfully completing the course:

### Build a ReFramework Project with Tabular Data

11/22/2021

Date of issue

Thomas P. Clancy  
Chief Learning Officer

[https://cloud.contentraven.com/crdownloadfiles/index.aspx?act=8MH4sSWyowEaN0eXRAsy+A\\_\\_&id=VqoDTOA2F3o\\_](https://cloud.contentraven.com/crdownloadfiles/index.aspx?act=8MH4sSWyowEaN0eXRAsy+A__&id=VqoDTOA2F3o_)



# Diploma of Completion

Proudly presented to:

**JOY SAHA**

For successfully completing the course:

**Get Started with UiPath Process  
Mining**

11/22/2021

Date of issue

  
**Thomas P. Clancy**  
Chief Learning Officer

[https://cloud.contentraven.com/crdownloadfiles/index.aspx?act=8MH4sSWyowEaN0eXRAsy+A\\_\\_&id=7rd8iDo8mFg\\_](https://cloud.contentraven.com/crdownloadfiles/index.aspx?act=8MH4sSWyowEaN0eXRAsy+A__&id=7rd8iDo8mFg_)



# Diploma of Completion

Proudly presented to:

**JOY SAHA**

For successfully completing the course:

**UiPath Data Service**

02/21/2022

Date of issue

  
**Thomas P. Clancy**  
Chief Learning Officer

[https://cloud.contentraven.com/crdownloadfiles/index.aspx?act=8MH4sSWyowEaN0eXRAsy+A\\_\\_&id=8BWmKF+z6iI\\_](https://cloud.contentraven.com/crdownloadfiles/index.aspx?act=8MH4sSWyowEaN0eXRAsy+A__&id=8BWmKF+z6iI_)



23-Feb-2022

## JOY DEEP SAHA

has successfully completed

### Natural Language Processing and Capstone Assignment

an online non-credit course authorized by University of California, Irvine and offered through Coursera

COURSE  
CERTIFICATE



Dursun Delen

Julie Pai  
Assistant Director of Technology Programs  
UCI Division of Continuing Education

Verify at:

[coursera.org/verify/6U9URX8PQPHN](https://coursera.org/verify/6U9URX8PQPHN)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/6U9URX8PQPHN>



University of Colorado

Boulder | Colorado Springs | Denver | Anschutz Medical Campus

Feb 23, 2022

## Joydeep Saha

has successfully completed

### Algorithms for Searching, Sorting, and Indexing

an online non-credit course authorized by University of Colorado Boulder and offered through Coursera

COURSE  
CERTIFICATE



Sriram Sankaranarayanan, PhD  
Associate Professor of Computer Science  
University of Colorado Boulder

Verify at:

[coursera.org/verify/Z97UJBHMYWW6](https://coursera.org/verify/Z97UJBHMYWW6)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/Z97UJBHMYWW6>

# Stanford | ONLINE

Feb 23, 2022

## Joydeep Saha

has successfully completed

### Introduction to Mathematical Thinking

an online non-credit course authorized by Stanford University and offered through Coursera

COURSE  
CERTIFICATE



A handwritten signature of Keith Devlin.

Keith Devlin, Ph.D., D.Sc.  
Stanford University

Verify at:  
[coursera.org/verify/LUUVDFSZCGMR](https://coursera.org/verify/LUUVDFSZCGMR)

Coursera has confirmed the identity of this individual and their participation in the course.

[http://coursera.org/verify/LUUVDFSZCGMR](https://coursera.org/verify/LUUVDFSZCGMR)



Universiteit  
Leiden

Feb 23, 2022

## Joydeep Saha

has successfully completed

### Mind of the Universe - Genetic Privacy: should we be concerned?

an online non-credit course authorized by Universiteit Leiden and offered through Coursera

COURSE  
CERTIFICATE



A handwritten signature of Lotte Pet.

Lotte Pet  
Art historian and artist  
Faculty of Humanities, Leiden University

A handwritten signature of Robert Zwijnenberg.

Robert Zwijnenberg  
Professor of Art and Science Interactions  
Faculty of Humanities, Leiden University

Verify at:  
[coursera.org/verify/LAAZVFT6JABV](https://coursera.org/verify/LAAZVFT6JABV)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/LAAZVFT6JABV>



THE UNIVERSITY  
of EDINBURGH



23-Feb-2022

## JOY DEEP SAHA

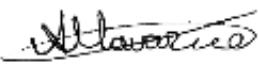
has successfully completed

### Code Yourself! An Introduction to Programming

an online non-credit course authorized by The University of Edinburgh and Universidad ORT Uruguay and offered through Coursera

## COURSE CERTIFICATE



 Dr Areti Maratsaki  
School of Informatics  
The University of Edinburgh

 Dr Inés Kereki  
Engineering School  
Universidad ORT Uruguay

Verify at:  
[coursera.org/verify/UUVXGCDQ6UZF](https://coursera.org/verify/UUVXGCDQ6UZF)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/UUVXGCDQ6UZF>



Feb 23, 2022

## JOY DEEP SAHA

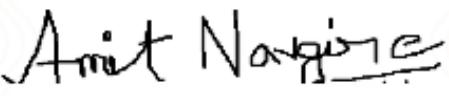
has successfully completed

### Azure Synapse SQL Pool - Implement Polybase

an online non-credit course authorized by Coursera Project Network and offered through Coursera

## COURSE CERTIFICATE



 AMIT NAVGIRE  
CLOUD DATA ARCHITECT

Verify at:  
[coursera.org/verify/THFN4KT5PMXW](https://coursera.org/verify/THFN4KT5PMXW)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/THFN4KT5PMXW>



# ONLINE

Apr 7, 2022

## JOY DEEP SAHA

has successfully completed

### Gamification

an online non-credit course authorized by University of Pennsylvania and offered through Coursera

### COURSE CERTIFICATE



*Kevin Werbach*

Professor Kevin Werbach  
The Wharton School  
University of Pennsylvania

Verify at:  
[coursera.org/verify/5GUZBEKTELCH](https://coursera.org/verify/5GUZBEKTELCH)

Coursera has confirmed the identity of this individual and their participation in the course.  
The online course named in this certificate may draw on material from courses taught on-campus, but it is not equivalent to an on-campus course. Participation in this online course does not constitute enrollment at the University of Pennsylvania. This certificate does not confer a University grade, course credit or degree, and it does not verify the identity of the learner.

<http://coursera.org/verify/5GUZBEKTELCH>



Feb 24, 2022

## JOY DEEP SAHA

has successfully completed

### Build a computer vision app with Azure Cognitive Services

an online non-credit course authorized by Microsoft and offered through Coursera

### COURSE CERTIFICATE



*Catalin Popa*

Catalin Popa  
Microsoft Azure MVP  
Microsoft MCT

Verify at:  
[coursera.org/verify/4RRBVR9L6MZU](https://coursera.org/verify/4RRBVR9L6MZU)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/4RRBVR9L6MZU>



# UNIVERSITY OF ALBERTA

Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

### Introduction to Software Product Management

an online non-credit course authorized by University of Alberta and offered through Coursera

## COURSE CERTIFICATE



Kenny Wong  
Associate Professor  
Computing Science, Faculty of Science

Verify at:  
[coursera.org/verify/3XAPEFC8FJDJ](https://coursera.org/verify/3XAPEFC8FJDJ)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/3XAPEFC8FJDJ>



Feb 24, 2022

## JOY DEEP SAHA

has successfully completed

### Build a Data Science Web App with Streamlit and Python

an online non-credit course authorized by Coursera Project Network and offered through Coursera

## COURSE CERTIFICATE



Snehan Kekre  
Instructor  
Machine Learning and Data Science

Verify at:  
[coursera.org/verify/KF56NC27U886](https://coursera.org/verify/KF56NC27U886)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/KF56NC27U886>



UNIVERSITY OF NORTH TEXAS®

Feb 23, 2022

## JOY DEEP SAHA

has successfully completed

Predicting Credit Card Fraud with R

an online non-credit course authorized by University of North Texas and offered through Coursera

### COURSE CERTIFICATE



John Garcia  
Clinical Assistant Professor  
Advanced Data Analytics

Verify at:  
[coursera.org/verify/4HW8FQ3BM3US](https://coursera.org/verify/4HW8FQ3BM3US)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/4HW8FQ3BM3US>



EINDHOVEN  
UNIVERSITY OF  
TECHNOLOGY

Feb 22, 2022

## Joydeep Saha

has successfully completed with honors

Process Mining: Data science in Action

an online non-credit course authorized by Eindhoven University of Technology and offered through Coursera

### COURSE CERTIFICATE

WITH HONORS



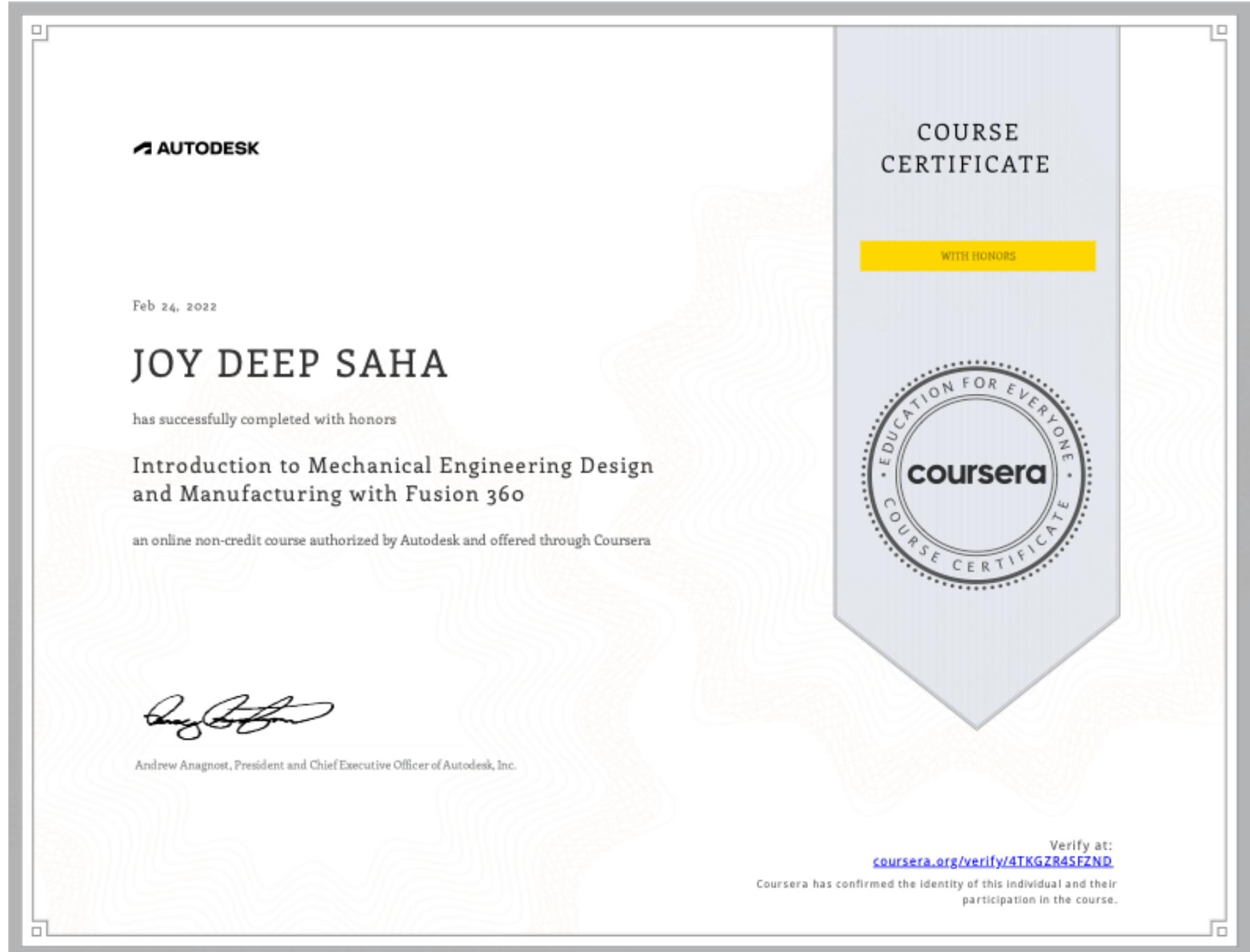
Professor dr. ir. Wil van der Aalst  
Department of Mathematics & Computer Science  
Eindhoven University of Technology (TU/e)  
Eindhoven, the Netherlands

Verify at:  
[coursera.org/verify/5FGR3ACL85SA](https://coursera.org/verify/5FGR3ACL85SA)

Coursera has confirmed the identity of this individual and their participation in the course.

This course represents a study load of 2 ECTS (3 ECTS in case of a certificate with honors).

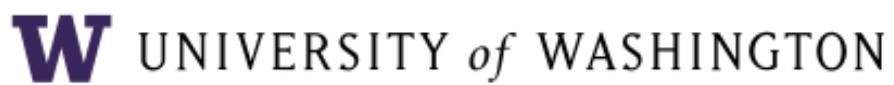
<http://coursera.org/verify/5FGR3ACL85SA>



<https://coursera.org/verify/4TKGZR4SFZND>



<https://courses.cognitiveclass.ai/certificates/eddb63c9028c4c1cbe0507c61d589456>



Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

**Programming Languages, Part A**

a MOOC from the University of Washington and offered through Coursera

COURSE  
CERTIFICATE



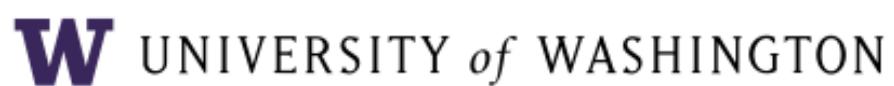
**W** UNIVERSITY OF WASHINGTON

Dan Grossman  
Professor  
Department of Computer Science & Engineering  
University of Washington

Verify at:  
[coursera.org/verify/KGRQSKU5AVDB](https://coursera.org/verify/KGRQSKU5AVDB)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/KGRQSKU5AVDB>



Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

**Programming Languages, Part B**

a MOOC from the University of Washington and offered through Coursera

COURSE  
CERTIFICATE



**W** UNIVERSITY OF WASHINGTON

Dan Grossman  
Professor  
Department of Computer Science & Engineering  
University of Washington

Verify at:  
[coursera.org/verify/6AN4TFG8HE6V](https://coursera.org/verify/6AN4TFG8HE6V)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/6AN4TFG8HE6V>



Feb 25, 2022

## JOY DEEP SAHA

has successfully completed with honors

**Foundations for Big Data Analysis with SQL**

an online non-credit course authorized by Cloudera and offered through Coursera

Glynn Durham  
Senior Instructor  
Cloudera

### COURSE CERTIFICATE

WITH HONORS



Verify at:

[coursera.org/verify/28QXYF7AGND3](https://coursera.org/verify/28QXYF7AGND3)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/28QXYF7AGND3>



SUNG KYUN KWAN  
UNIVERSITY

Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

**Machine Learning Algorithms**

an online non-credit course authorized by Sungkyunkwan University and offered through Coursera

Jaekwang KIMAssistant ProfessorSchool of Convergence at College of Computing and Informatics

### COURSE CERTIFICATE



Verify at:

[coursera.org/verify/67VPV4YV2Q4S](https://coursera.org/verify/67VPV4YV2Q4S)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/67VPV4YV2Q4S>



COURSE  
CERTIFICATE

Feb 24, 2022

## JOY DEEP SAHA

has successfully completed

### Introduction to CAD, CAM, and Practical CNC Machining

an online non-credit course authorized by Autodesk and offered through Coursera



Andrew Anagnost, President and Chief Executive Officer of Autodesk, Inc.

Verify at:  
[coursera.org/verify/AR2UASGAHXZY](https://coursera.org/verify/AR2UASGAHXZY)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/AR2UASGAHXZY>



COURSE  
CERTIFICATE

Feb 23, 2022

## JOY DEEP SAHA

has successfully completed

### OpenVINO Beginner: Building a Crossroad AI Camera

an online non-credit course authorized by Intel and offered through Coursera



Moloti T Nakampe  
Software Innovator  
Intel Corporation

Verify at:  
[coursera.org/verify/CEZW2494P6BY](https://coursera.org/verify/CEZW2494P6BY)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/CEZW2494P6BY>

**NYU****TANDON SCHOOL  
OF ENGINEERING**

Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

### Introduction to Cyber Attacks

an online non-credit course authorized by New York University and offered through Coursera

**COURSE  
CERTIFICATE***Edward G. Amoroso*Dr. Edward G. Amoroso  
Research Professor, NYU and CEO, TAG Cyber LLC  
Computer ScienceVerify at:  
[coursera.org/verify/EU94YTAUTGC4](https://coursera.org/verify/EU94YTAUTGC4)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/EU94YTAUTGC4>**ILLINOIS**

Feb 23, 2022

## JOY DEEP SAHA

has successfully completed

### Analyze City Data Using R and Tableau

an online non-credit course authorized by University of Illinois at Urbana-Champaign and offered through Coursera

**COURSE  
CERTIFICATE***[Signature]*  
Director of Margolis Market Information Lab  
Department of Finance - Gies College of BusinessVerify at:  
[coursera.org/verify/FXZ383XTVU5L](https://coursera.org/verify/FXZ383XTVU5L)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/FXZ383XTVU5L>



University of Colorado

Boulder | Colorado Springs | Denver | Anschutz Medical Campus

COURSE  
CERTIFICATE



Feb 25, 2022

## Joydeep Saha

has successfully completed

### Data Science as a Field

an online non-credit course authorized by University of Colorado Boulder and offered through Coursera

Jane Wall  
Faculty Director of Data Science Programs  
University of Colorado Boulder

Verify at:  
[coursera.org/verify/GX6QQSCV5WGW](https://coursera.org/verify/GX6QQSCV5WGW)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/GX6QQSCV5WGW>



COURSE  
CERTIFICATE



Feb 23, 2022

## JOY DEEP SAHA

has successfully completed

### Интерактивные диаграммы в Plotly: круговые и sunburst

an online non-credit course authorized by E-Learning Development Fund and offered through Coursera

Задойный Алексей Владимирович  
служба развития внешних сайтов

Verify at:  
[coursera.org/verify/J22JFPG8H3H4](https://coursera.org/verify/J22JFPG8H3H4)

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UC SANTA CRUZ

COURSE  
CERTIFICATE

WITH HONORS

Feb 25, 2022

## JOY DEEP SAHA

has successfully completed with honors

### Bayesian Statistics: From Concept to Data Analysis

an online non-credit course authorized by University of California, Santa Cruz and offered through Coursera



Herbert Lee  
Professor  
Statistics

Verify at:  
[coursera.org/verify/JQG6A32886MZ](https://coursera.org/verify/JQG6A32886MZ)

Coursera has confirmed the identity of this individual and their participation in the course.

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THE  
NEW  
SCHOOL

# PARSONS

Feb 24, 2022

## JOY DEEP SAHA

has successfully completed

### Artificial Creativity

an online non-credit course authorized by Parsons School of Design, The New School and offered through Coursera

COURSE  
CERTIFICATE



Mariana Amatullo, Vice Provost for Global Executive Education & Online Strategic Initiatives

Verify at:  
[coursera.org/verify/K68U7KUCD98J](https://coursera.org/verify/K68U7KUCD98J)

Coursera has confirmed the identity of this individual and their participation in the course.

This not-for-credit course was offered as part of the Parsons School of Design Creativity & A.I. Specialization.

<http://coursera.org/verify/K68U7KUCD98J>



COURSE  
CERTIFICATE



Feb 24, 2022

## JOY DEEP SAHA

has successfully completed

### Modern Supervisor Skills

an online non-credit course authorized by Institute of Certified Professional Managers and offered through Coursera

*Steve Van Oostenbrugge*

Steve Van Oostenbrugge, PhD, MBA, CM  
ICPM Executive Director

Verify at:

[coursera.org/verify/KFVHZZN9KY9E](https://coursera.org/verify/KFVHZZN9KY9E)

Coursera has confirmed the identity of this individual and their participation in the course.

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COURSE  
CERTIFICATE



Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

### Practical Python for AI Coding 1

an online non-credit course authorized by Korea Advanced Institute of Science and Technology(KAIST) and offered through Coursera

*Kwon Youngsoon*

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Feb 23, 2022

## Joydeep Saha

has successfully completed

### Fibonacci Numbers and the Golden Ratio

an online non-credit course authorized by The Hong Kong University of Science and Technology and offered through Coursera

Jeffrey R. Chasnov  
Professor  
Department of Mathematics

## COURSE CERTIFICATE



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<https://coursera.org/verify/MTWQCPFP2YS3>

UC SANTA CRUZ

Feb 25, 2022

## Joydeep Saha

has successfully completed

### C for Everyone: Programming Fundamentals

an online non-credit course authorized by University of California, Santa Cruz and offered through Coursera

Professor Ira Pohl, PhD  
Baskin School of Engineering  
University of California, Santa Cruz

## COURSE CERTIFICATE



Verify at:

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## COURSE CERTIFICATE



Feb 24, 2022

### JOY DEEP SAHA

has successfully completed

#### Fundamentos de TypeScript

an online non-credit course authorized by Universidad de los Andes and offered through Coursera

Juan Pablo Reyes Gómez, Profesor de cátedra, Ingeniería de sistemas y computación, Facultad de ingeniería  
Rubby Casallas, Profesora titular y decana, Ingeniería de sistemas y computación, Facultad de ingeniería  
Jose Joaquín Bocanegra, Asistente postdoctoral, Ingeniería de sistemas y computación, Facultad de ingeniería

Verify at:  
[coursera.org/verify/SZNL96KYUSJT](https://coursera.org/verify/SZNL96KYUSJT)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/SZNL96KYUSJT>



This is to certify that

### JOY DEEP SAHA

successfully completed and received a passing grade in

#### Data Visualization with R

(DV0151EN, provided by IBM)

A course on cognitiveclass.ai  
Powered by IBM Developer Skills Network.

Issued by  
Cognitive Class

Raul F. Chong  
Raul F. Chong

**February 24, 2022**

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Feb 25, 2022

## JOY DEEP SAHA

has successfully completed

### SQL for Data Science

an online non-credit course authorized by University of California, Davis and offered through Coursera

### COURSE CERTIFICATE



Sadie St. Lawrence  
AI Strategy Consultant for Accenture Applied Intelligence  
Founder of Women in Data (WID)  
Instructor, University of California, Davis Extension

Verify at:

[coursera.org/verify/UAFDFNC2R3UK](https://coursera.org/verify/UAFDFNC2R3UK)

Coursera has confirmed the identity of this individual and their participation in the course.

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Apr 5, 2022

## JOY DEEP SAHA

has successfully completed

### Robotics: Aerial Robotics

an online non-credit course authorized by University of Pennsylvania and offered through Coursera

### COURSE CERTIFICATE



Vijay Kumar  
Nemirovsky Family Dean of Penn Engineering

Verify at:

[coursera.org/verify/YKUBD2ATXMLD](https://coursera.org/verify/YKUBD2ATXMLD)

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<https://coursera.org/verify/YKUBD2ATXMLD>



Dec 24, 2021

## Joydeep Saha

has successfully completed

**Mathematics for Machine Learning: Linear Algebra**

an online non-credit course authorized by Imperial College London and offered through Coursera

### COURSE CERTIFICATE





David Dye, Samuel J. Cooper, and A. Freddie Page

Verify at:  
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Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/SA39X4XFHNQ2>



Dec 25, 2021

## Joydeep Saha

has successfully completed

**Microsoft Azure Machine Learning**

an online non-credit course authorized by Microsoft and offered through Coursera

### COURSE CERTIFICATE





Betty Vandenbosch  
Chief Content Officer

Verify at:  
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<https://coursera.org/verify/G5DMZUFF24KT>



<https://coursera.org/verify/865L9KBAG3EA>



<https://coursera.org/verify/VP7LLWU8MKB5>



COURSE  
CERTIFICATE

13-Apr-2022

## JOY DEEP SAHA

has successfully completed

Operating Systems and You: Becoming a Power User

an online non-credit course authorized by Google and offered through Coursera



**Google**

Google

Verify at:

<https://coursera.org/verify/REXVX7GAMBWN>

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COURSE  
CERTIFICATE

13-Apr-2022

## JOY DEEP SAHA

has successfully completed

IT Security: Defense against the digital dark arts

an online non-credit course authorized by Google and offered through Coursera



**Google**

Google

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COURSE  
CERTIFICATE

14-Apr-2022

## JOY DEEP SAHA

has successfully completed

System Administration and IT Infrastructure  
Services

an online non-credit course authorized by Google and offered through Coursera



**Google**

Google

Verify at:

<https://coursera.org/verify/4SME8VTCJ74N>

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<https://coursera.org/verify/4SME8VTCJ74N>



This is to certify that

## JOY DEEP SAHA

successfully completed and received a passing grade in

# Kubernetes Operators Advanced

(CO0302EN, provided by IBM)

A course on cognitiveclass.ai  
Powered by IBM Developer Skills Network.

Issued by  
Cognitive Class

April 13, 2022

Authenticity of this certificate can be validated by going to:

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<https://courses.cognitiveclass.ai/certificates/74f279c8664f46439466b4395409c3c2>



14-Apr-2022

## JOY DEEP SAHA

has successfully completed

### Using SAS Viya REST APIs with Python and R

an online non-credit course authorized by SAS and offered through Coursera

### COURSE CERTIFICATE



Jordan Bakerman

Analytical Training Consultant  
SAS Education

Ari Zitin

Analytical Training Consultant  
SAS Education

Verify at:

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15-Apr-2022

## JOY DEEP SAHA

has successfully completed

### Ethics, Culture, and Global Perspectives

an online non-credit course authorized by University of Illinois at Urbana-Champaign and offered through Coursera

### COURSE CERTIFICATE



W. Brooke Elliott

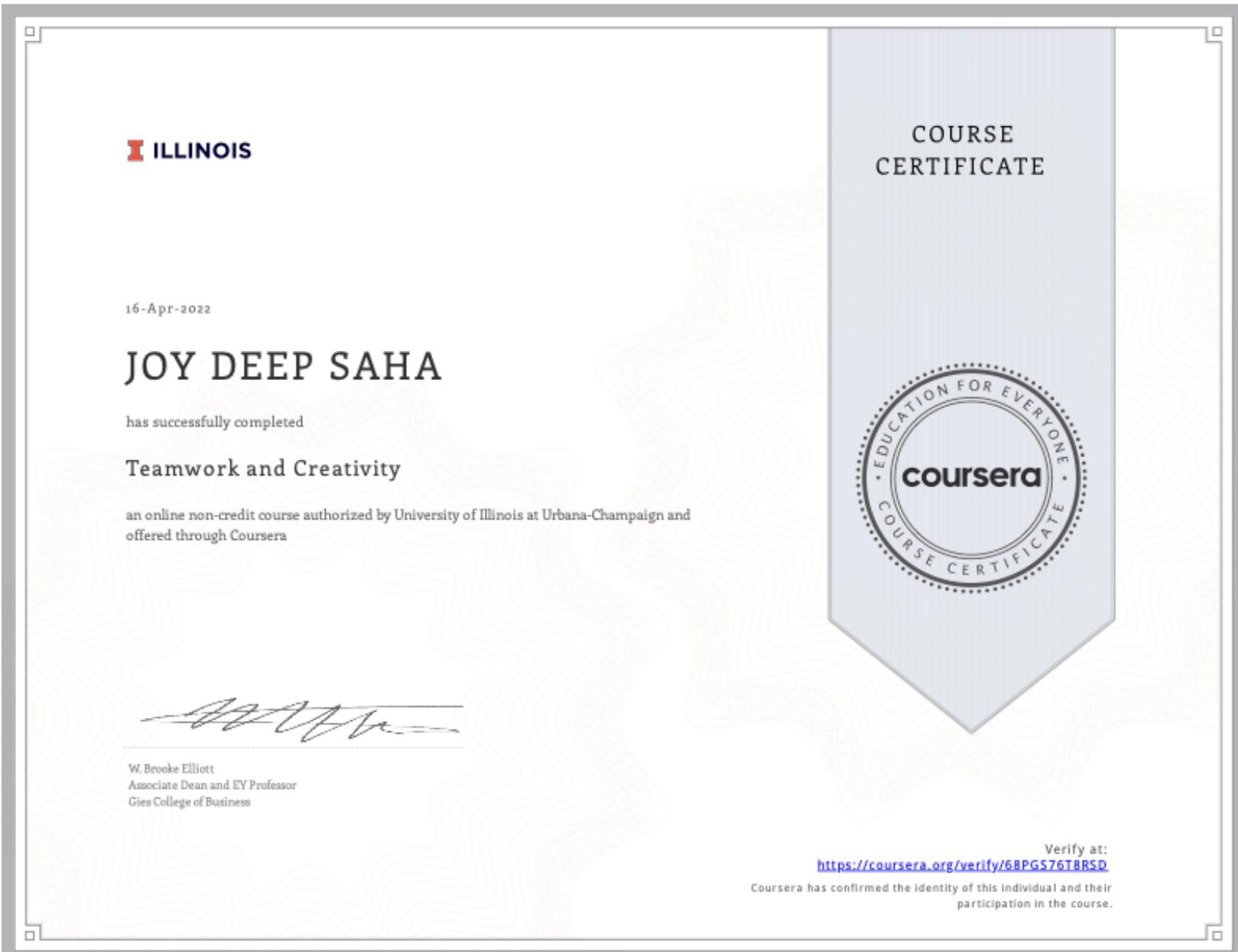
Associate Dean and EY Professor  
Gies College of Business

Verify at:

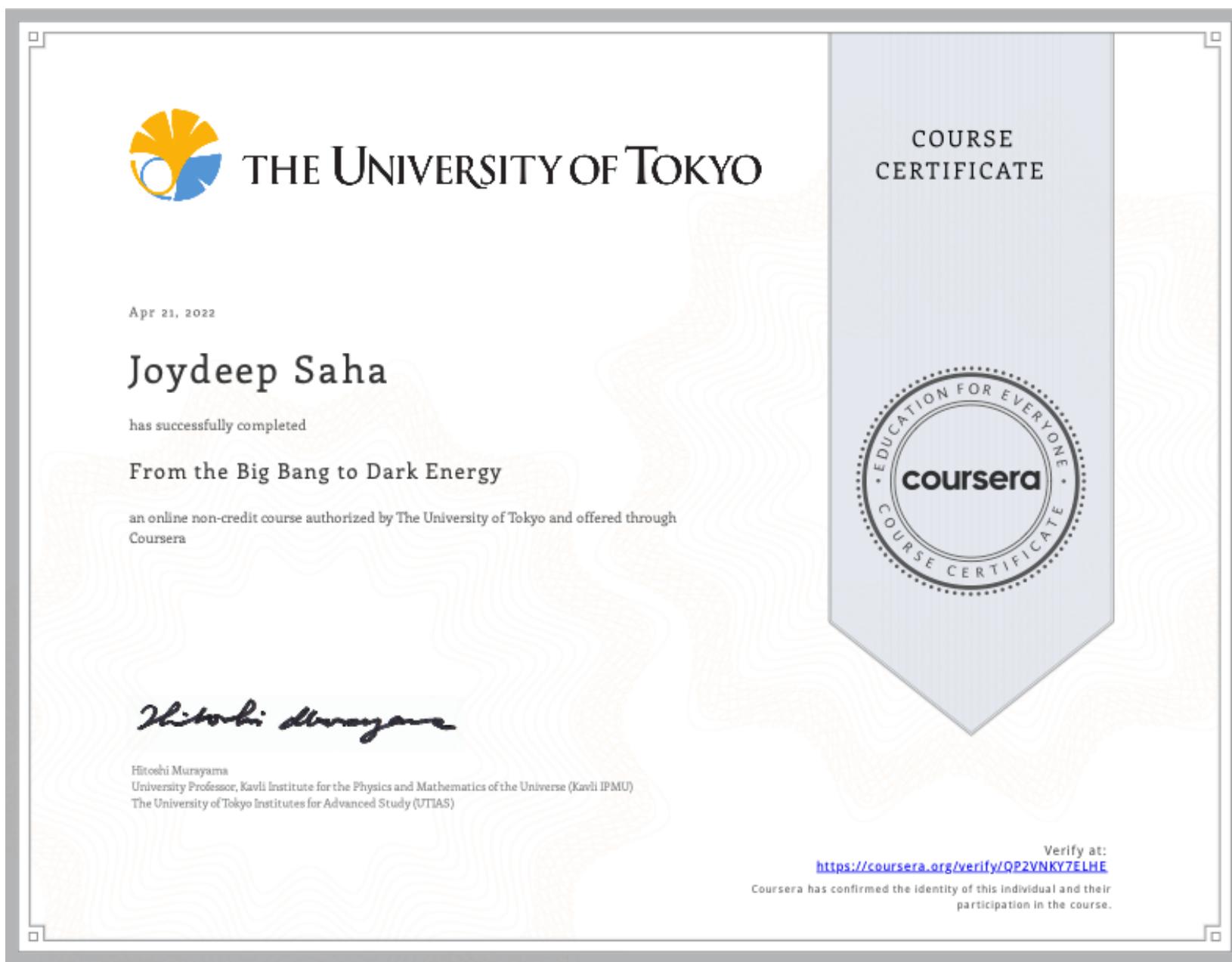
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<https://coursera.org/verify/68PGS76T8RSD>



<https://coursera.org/verify/QP2VNKY7ELHE>



## COURSE CERTIFICATE

16-Apr-2022

### JOY DEEP SAHA

has successfully completed

#### Organizational Concepts and Language

an online non-credit course authorized by University of Illinois at Urbana-Champaign and offered through Coursera



W. Brooke Elliott  
Associate Dean and EY Professor  
Gies College of Business

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## COURSE CERTIFICATE

17-Apr-2022

### JOY DEEP SAHA

has successfully completed

#### Leadership

an online non-credit course authorized by University of Illinois at Urbana-Champaign and offered through Coursera



W. Brooke Elliott  
Associate Dean and EY Professor  
Gies College of Business

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<https://coursera.org/verify/2XFP5WPVJRTY>



COURSE  
CERTIFICATE



Dec 11, 2021

Joydeep Saha

has successfully completed

Machine Learning Foundations for Product  
Managers

an online non-credit course authorized by Duke University and offered through Coursera

Jon Reischneider  
Director, Master of Engineering in AI for Product Innovation  
Duke University's Pratt School of Engineering

Verify at:  
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COURSE  
CERTIFICATE



ONLINE

Apr 8, 2022

JOY DEEP SAHA

has successfully completed

Accounting Analytics

an online non-credit course authorized by University of Pennsylvania and offered through  
Coursera

Professor Brian J. Bushue  
The Geoffrey T. Boisi Professor  
Wharton School  
University of Pennsylvania

Christopher D. Ittner  
EY Professor of Accounting  
Wharton School  
University of Pennsylvania

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<https://www.coursera.org/verify/9L76FXYTMYRJ>



UNIVERSITY  
OF LONDON

Feb 25, 2022

## Joydeep Saha

has successfully completed

### Machine Learning for All

an online non-credit course authorized by University of London and offered through Coursera

Prof Marco Gillies  
Computing Department,  
Goldsmiths, University of London

COURSE  
CERTIFICATE



Verify at:

[coursera.org/verify/YPYXLDRYWNRR](https://coursera.org/verify/YPYXLDRYWNRR)

Coursera has confirmed the identity of this individual and their participation in the course.

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Feb 24, 2022

## JOY DEEP SAHA

has successfully completed

### Building Cloud Services with the Java Spring Framework

an online non-credit course authorized by Vanderbilt University and offered through Coursera

Dr. Jules White  
Associate Professor  
Department of Electrical Engineering and Computer Science  
Vanderbilt University

Dr. Douglas C. Schmidt  
Professor of Computer Science  
Vanderbilt University

COURSE  
CERTIFICATE



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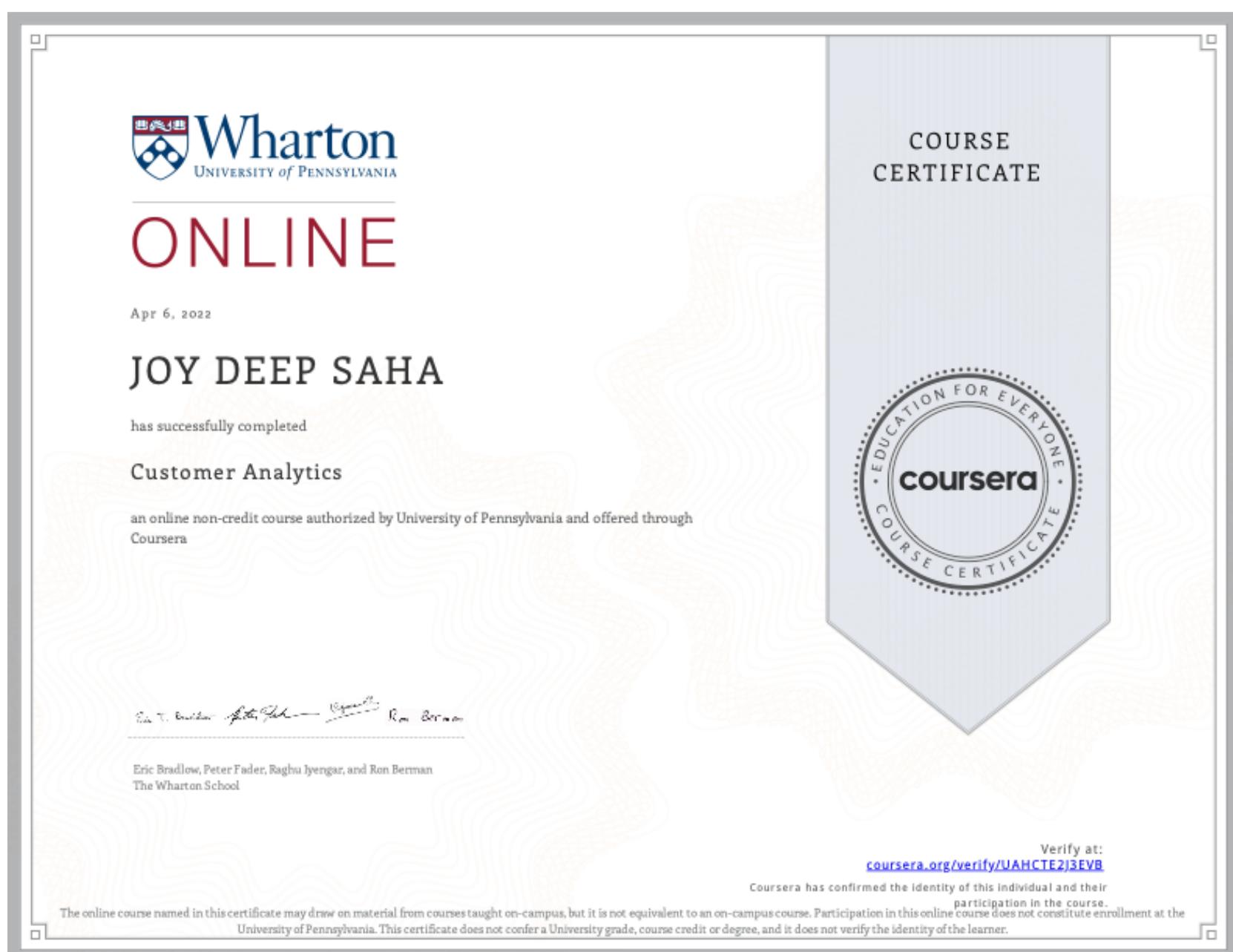
[coursera.org/verify/VVFS77S296NE](https://coursera.org/verify/VVFS77S296NE)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/VVFS77S296NE>



<https://coursera.org/verify/XFQWB6CBHYKV>



<https://coursera.org/verify/UAHCTE2J3EVB>



**MACQUARIE**  
University  
SYDNEY · AUSTRALIA

COURSE  
CERTIFICATE



23-Feb-2022

## JOY DEEP SAHA

has successfully completed

**Business intelligence and data analytics: Generate insights**

an online non-credit course authorized by Macquarie University and offered through Coursera

*Connor Stead*

Connor Stead  
Department of Actuarial Studies and Business Analytics  
Macquarie Business School  
Sydney, Australia

Verify at:  
[coursera.org/verify/W2R5HXV6S7TU](https://coursera.org/verify/W2R5HXV6S7TU)

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## ONLINE

Apr 6, 2022

## JOY DEEP SAHA

has successfully completed

**People Analytics**

an online non-credit course authorized by University of Pennsylvania and offered through Coursera

COURSE  
CERTIFICATE



*(Signature)*

Cade Massey | Martine Hass | Matthew Bidwell  
Practice Professor | Associate Professor of Management | Associate Professor of Management  
The Wharton School, University of Pennsylvania

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COURSE  
CERTIFICATE

Oct 30, 2021

Joydeep Saha

has successfully completed

Getting Started with AWS Machine Learning

an online non-credit course authorized by Amazon Web Services and offered through  
Coursera



Blaine Sundrud  
Senior Technical Trainer  
AWS Training and Certification

Verify at:  
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YONSEI  
UNIVERSITY

COURSE  
CERTIFICATE

Apr 10, 2022

Joy Deep Saha

has successfully completed

Big Data Emerging Technologies

an online non-credit course authorized by Yonsei University and offered through  
Coursera

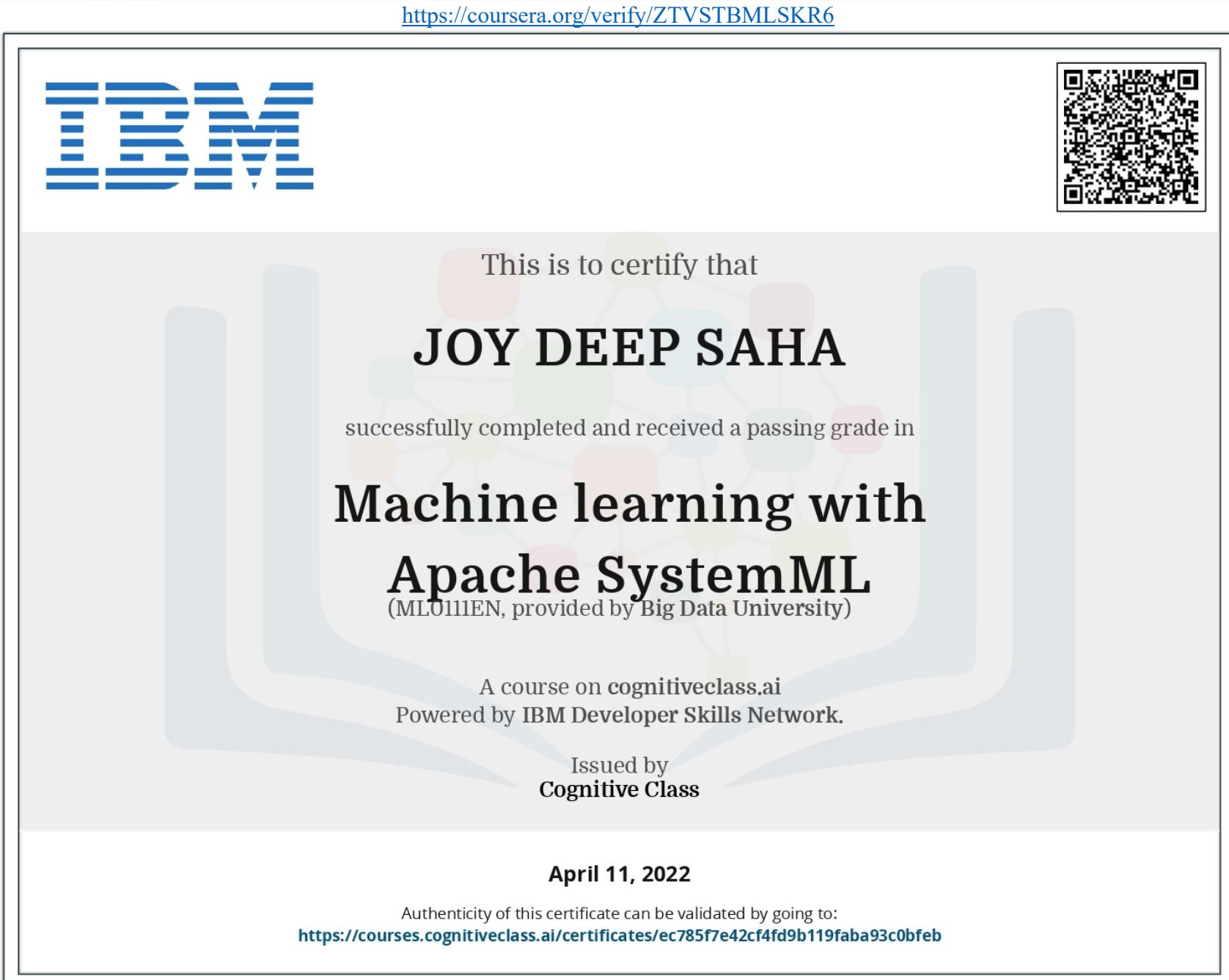


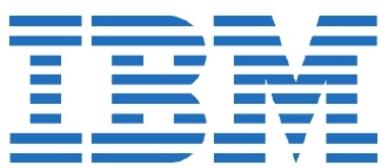
Jong-Moon Chung  
Professor, School of Electrical & Electronic Engineering  
Director, Communications & Networking Laboratory

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participation in the course.

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This is to certify that

**JOY DEEP SAHA**

successfully completed and received a passing grade in

**Python 101 for Data Science**

(PY0101EN, provided by IBM)

A course on cognitiveclass.ai  
Powered by IBM Developer Skills Network.

Issued by  
**Cognitive Class**

Cognitive Class

**April 11, 2022**

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Grow with **Google**

## Applied Digital Skills

Certificate of Completion

**THIS CERTIFIES THAT**

**JOY DEEP SAHA**

**HAS COMPLETED**

G Suite Certification: Drive

**AWARDED ON**

**April 2, 2020**





This is to certify that

**JOY DEEP SAHA**

successfully completed and received a passing grade in

**Data Privacy Fundamentals**  
(DS0301EN, provided by Fireside Analytics Inc.)

A course on cognitiveclass.ai  
Powered by IBM Developer Skills Network.

Issued by  
**Cognitive Class**

**April 19, 2022**

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successfully completed and received a passing grade in

**IBM Blockchain Foundation  
Developer**  
(BC0201EN, provided by IBMDeveloperSkillsNetwork)

A course on cognitiveclass.ai  
Powered by IBM Developer Skills Network.

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**April 11, 2022**

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<https://courses.cognitiveclass.ai/certificates/d2000b1f9c364132be651ebacceb5cda>



This is to certify that

**JOY DEEP SAHA**

successfully completed and received a passing grade in

## **Hybrid Cloud Conference – App Security and Threat Modeler Lab**

(HCC101EN, provided by IBMDeveloperSkillsNetwork)

A course on cognitiveclass.ai  
Powered by IBM Developer Skills Network.

Issued by  
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**April 19, 2022**

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<https://courses.cognitiveclass.ai/certificates/6753dc9c823a47cdb11a6438e6c95eed>

**Google Analytics Academy**

**Google Analytics for Beginners**  
Certificate of Completion



**JOY DEEP SAHA**

Awarded for successfully completing  
the course "Google Analytics for  
Beginners"



Certificate expires April 23, 2023



This is to certify that

**JOY DEEP SAHA**

successfully completed and received a passing grade in

**Hybrid Cloud Conference –  
Microservices Lab**

(HCC102EN, provided by IBMDeveloperSkillsNetwork)

A course on cognitiveclass.ai  
Powered by IBM Developer Skills Network.

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**Cognitive Class**

**April 19, 2022**

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<https://courses.cognitiveclass.ai/certificates/9726744dc5614b4cae337f2c1e69a231>

**Google Analytics Academy**

**Google Tag Manager Fundamentals**

**Certificate of Completion**



**JOY DEEP SAHA**

Awarded for successfully completing  
the course "Google Tag Manager  
Fundamentals"



Certificate expires April 16, 2023



This is to certify that

**JOY DEEP SAHA**

successfully completed and received a passing grade in

## Introduction to Machine Learning with Sound

(DW0101EN, provided by IBM)

A course on cognitiveclass.ai  
Powered by IBM Developer Skills Network.

Issued by  
**Cognitive Class**

**April 19, 2022**

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<https://courses.cognitiveclass.ai/certificates/45db613c0c1243bea7d9056635aba837>



Feb 25, 2022

**JOY DEEP SAHA**

has successfully completed

**Human-Centered Design: an Introduction**

an online non-credit course authorized by University of California San Diego and offered through Coursera

**COURSE  
CERTIFICATE**



  
Professor Scott Klemmer

Cognitive Science and Computer Science & Engineering  
University of California, San Diego

Verify at:

[coursera.org/verify/5C4XVX8K95GF](https://coursera.org/verify/5C4XVX8K95GF)

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/5C4XVX8K95GF>



This is to certify that

## JOY DEEP SAHA

successfully completed and received a passing grade in

### Scala 101

(SC0101EN, provided by LightBend)

A course on cognitiveclass.ai  
Powered by IBM Developer Skills Network.

Issued by  
Cognitive Class

April 19, 2022

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<https://courses.cognitiveclass.ai/certificates/97e7e3f72659411cbb28864cef1eea09>



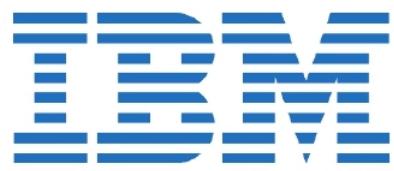
## JOY DEEP SAHA

has completed the GCFLearnFree®  
self-paced coursework for

Word on April 14, 2020

with a quiz score of 100 out of 100





This is to certify that

## JOY DEEP SAHA

successfully completed and received a passing grade in

### Statistics 101

(ST0101EN, provided by IBM)

A course on cognitiveclass.ai  
Powered by IBM Developer Skills Network.

Issued by  
Cognitive Class

April 11, 2022

Authenticity of this certificate can be validated by going to:

<https://courses.cognitiveclass.ai/certificates/9e157199503241df8a415a4d1b26ea4d>

<https://courses.cognitiveclass.ai/certificates/9e157199503241df8a415a4d1b26ea4d>

AUTODESK

COURSE  
CERTIFICATE

15-Apr-2022

## JOY DEEP SAHA

has successfully completed

### Generative Design for Additive Manufacturing

an online non-credit course authorized by Autodesk and offered through Coursera



Andrew Anagnost, President and Chief Executive Officer of Autodesk, Inc.

Verify at:  
<https://coursera.org/verify/7DV8YS7MCQZJ>

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COURSE  
CERTIFICATE

18-Apr-2022

## JOY DEEP SAHA

has successfully completed

**Generative Design for Performance and Weight Reduction**

an online non-credit course authorized by Autodesk and offered through Coursera



Andrew Anagnost, President and Chief Executive Officer of Autodesk, Inc.

Verify at:  
<https://coursera.org/verify/6ZARFCAFZAEH>

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/6ZARFCAFZAEH>



The State University  
of New York

COURSE  
CERTIFICATE

18-Apr-2022

## JOY DEEP SAHA

has successfully completed

**Exploring Emerging Technologies for Lifelong Learning and Success**

an online non-credit course authorized by The State University of New York and offered through Coursera



*Roberta (Robin) Sullivan Ch. H.*

Roberta (Robin) Sullivan  
Teaching & Learning Strategist  
University Libraries  
University at Buffalo

Cherie van Putten  
Instructional Designer  
Center for Learning and Teaching  
Binghamton University

Verify at:  
<https://coursera.org/verify/SHCWL9PB4F4N>

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/SHCWL9PB4F4N>



## COURSE CERTIFICATE

18-Apr-2022

### JOY DEEP SAHA

has successfully completed

**Generative Design for Industrial Applications**

an online non-credit course authorized by Autodesk and offered through Coursera



Andrew Anagnos, President and Chief Executive Officer of Autodesk, Inc.

Verify at:

<https://coursera.org/verify/ZXAWMWEBEWY3>

Coursera has confirmed the identity of this individual and their participation in the course.

<https://coursera.org/verify/ZXAWMWEBEWY3>



## COURSE CERTIFICATE

18-Apr-2022

### JOY DEEP SAHA

has successfully completed

**Generative Design for Industrial Applications**

an online non-credit course authorized by Autodesk and offered through Coursera



Andrew Anagnos, President and Chief Executive Officer of Autodesk, Inc.

Verify at:

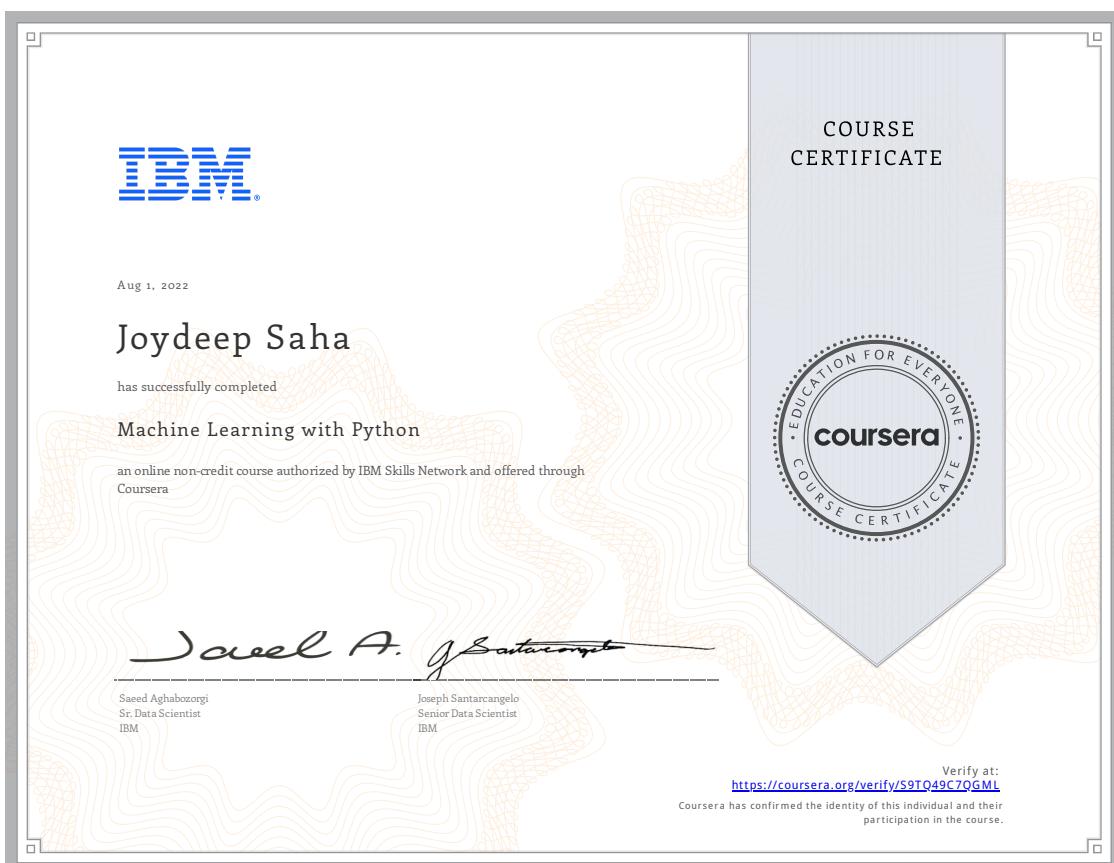
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Coursera has confirmed the identity of this individual and their participation in the course.

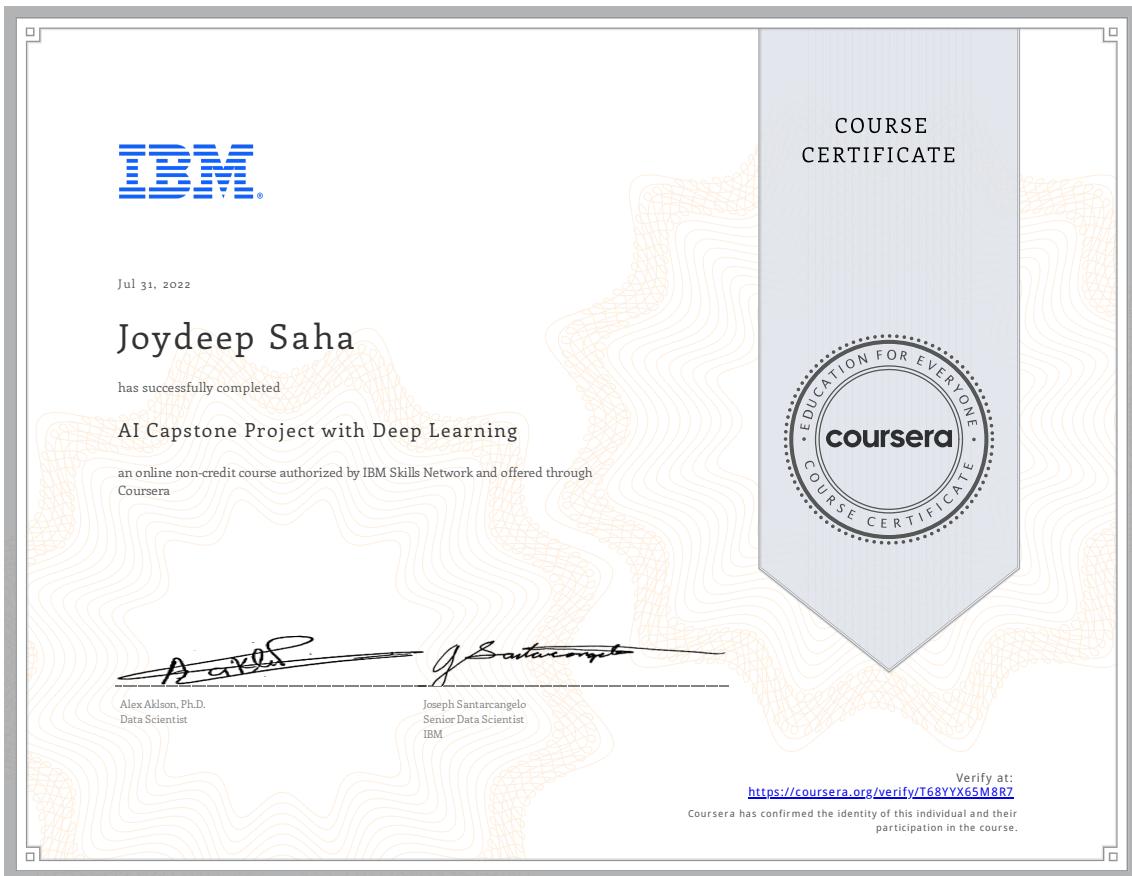
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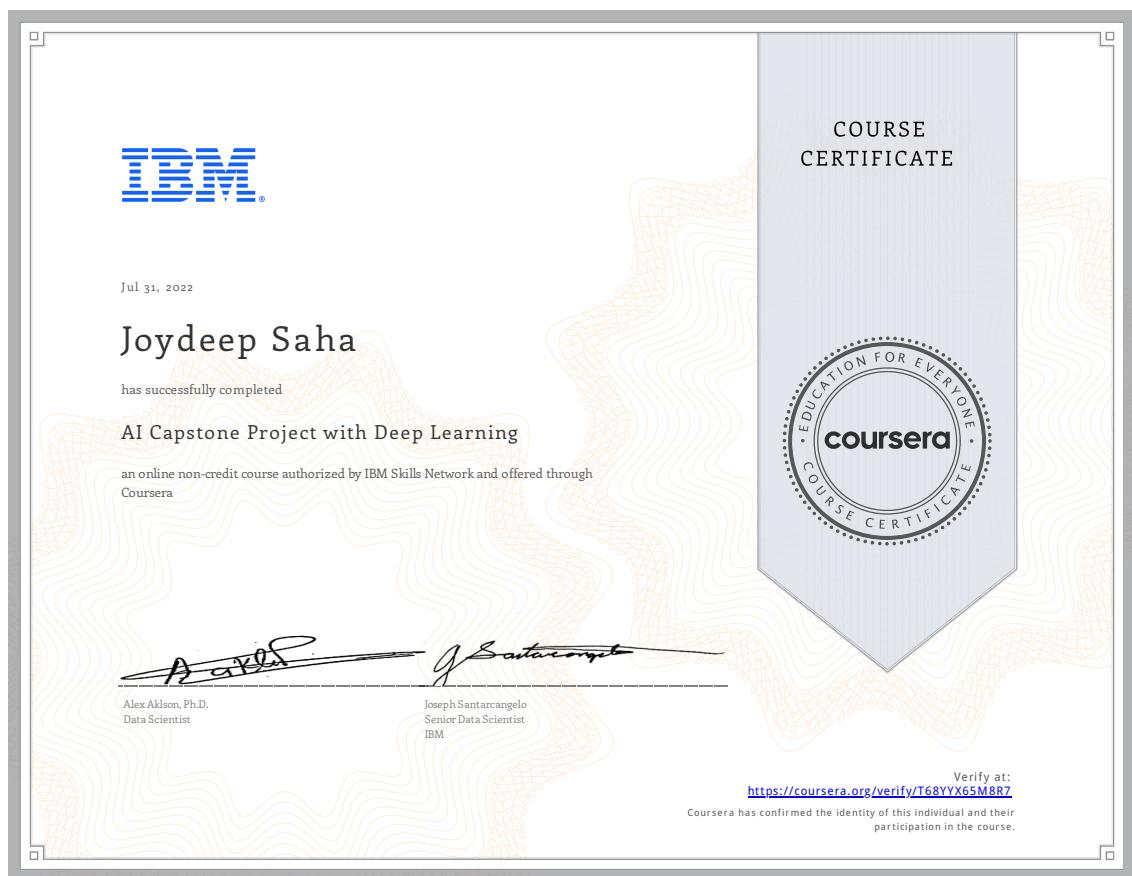
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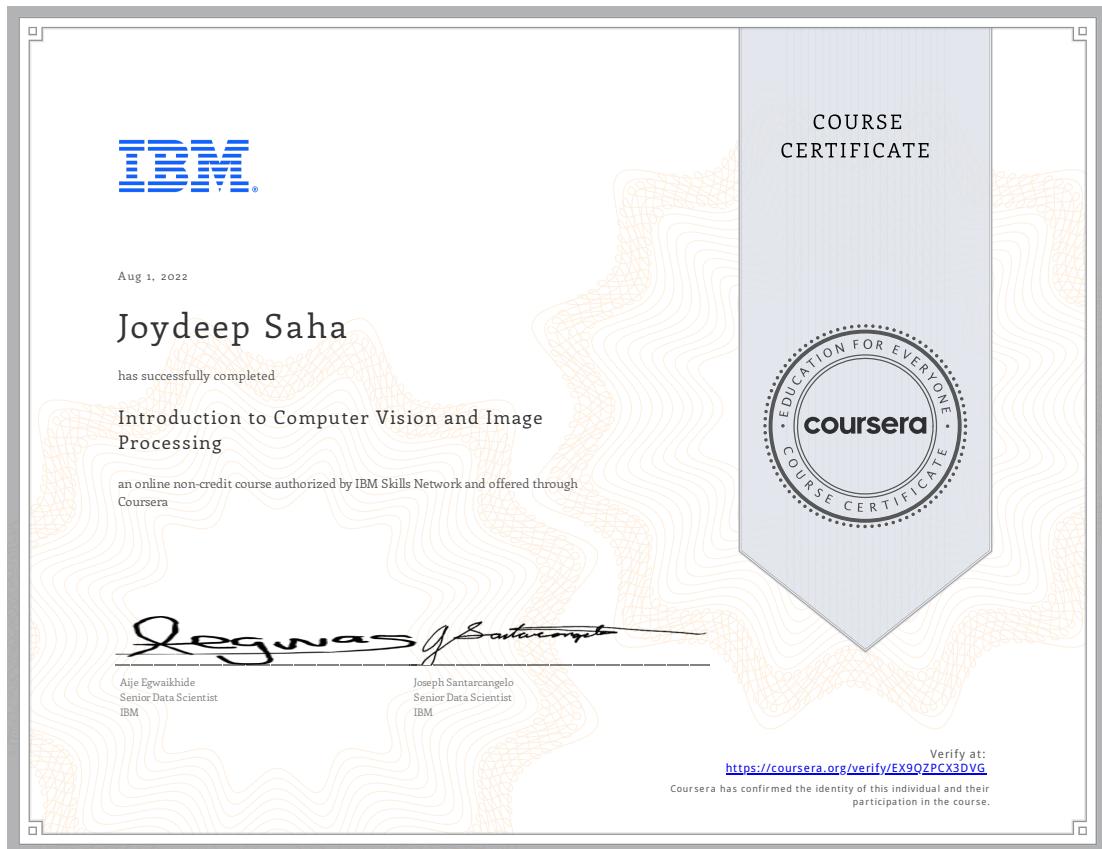
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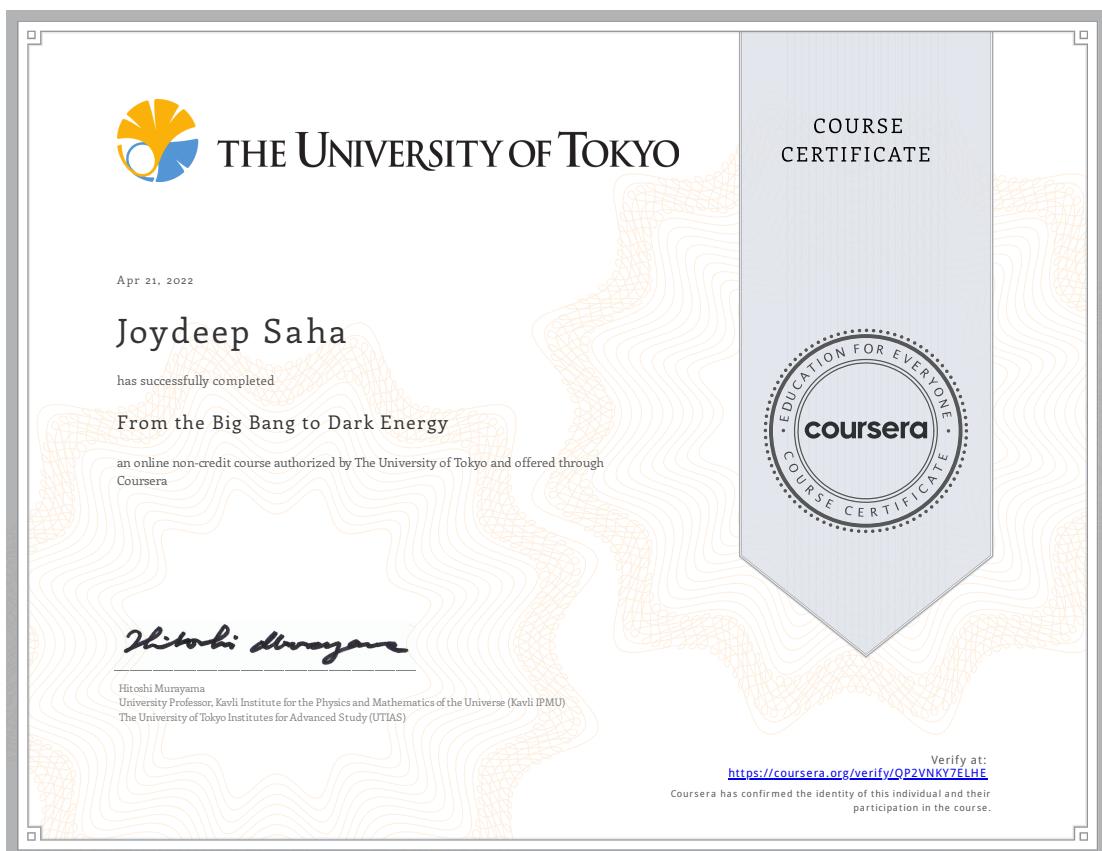
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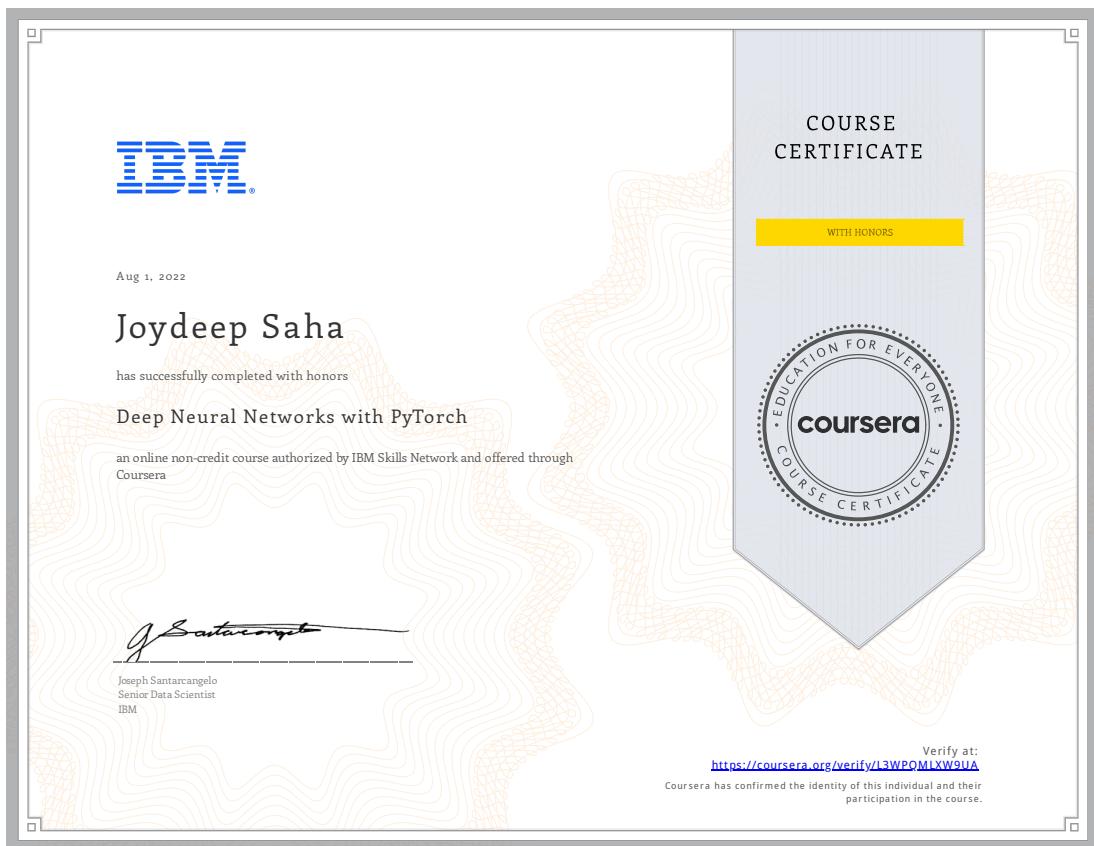
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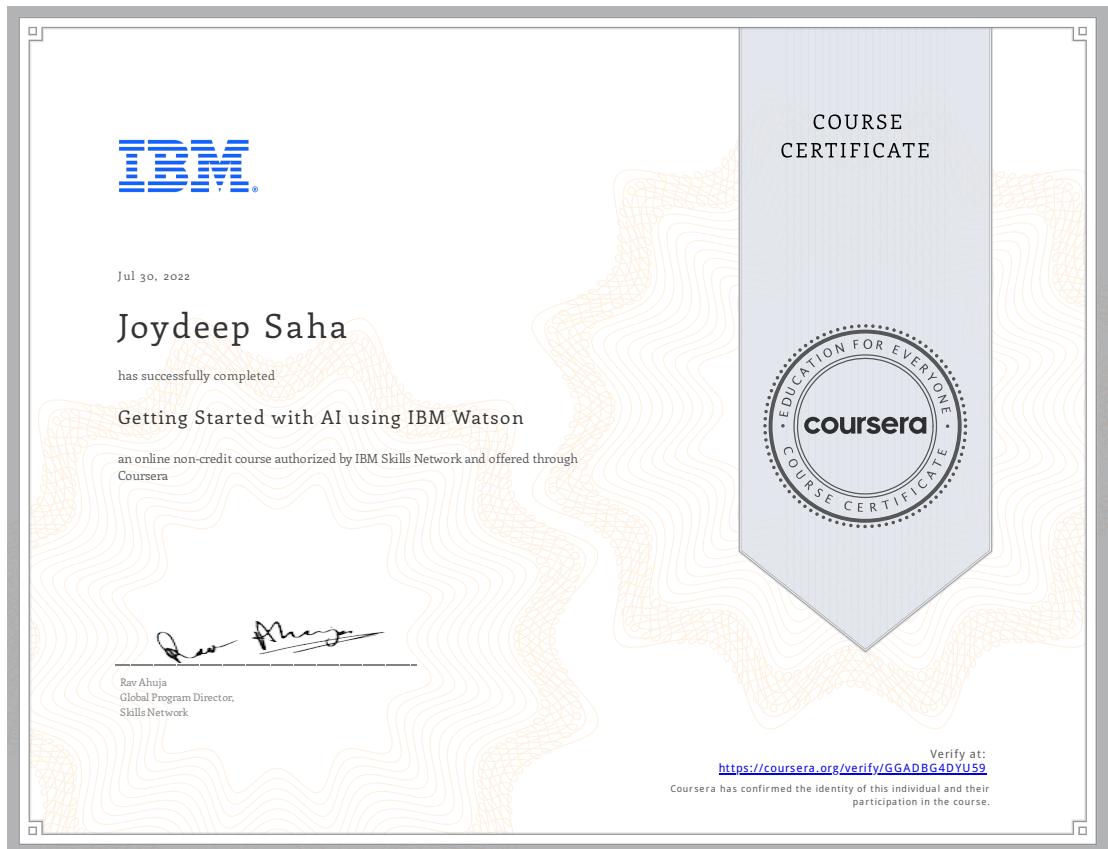
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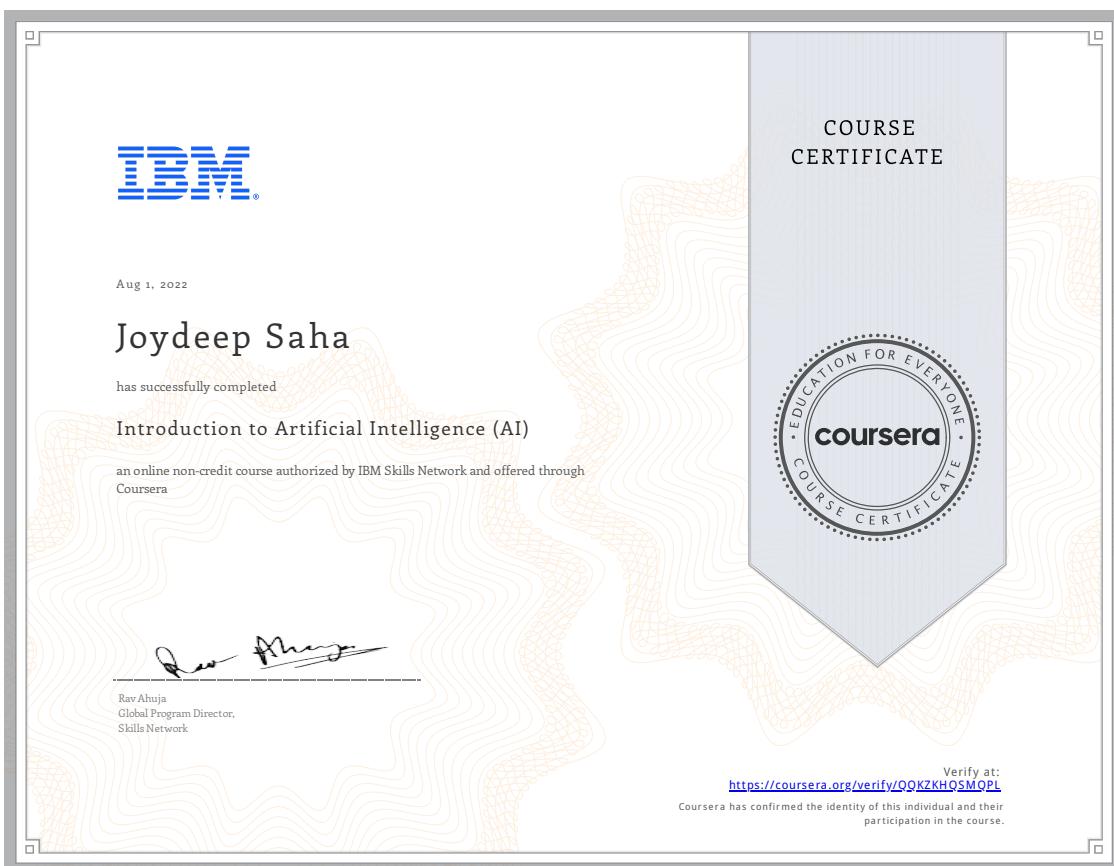
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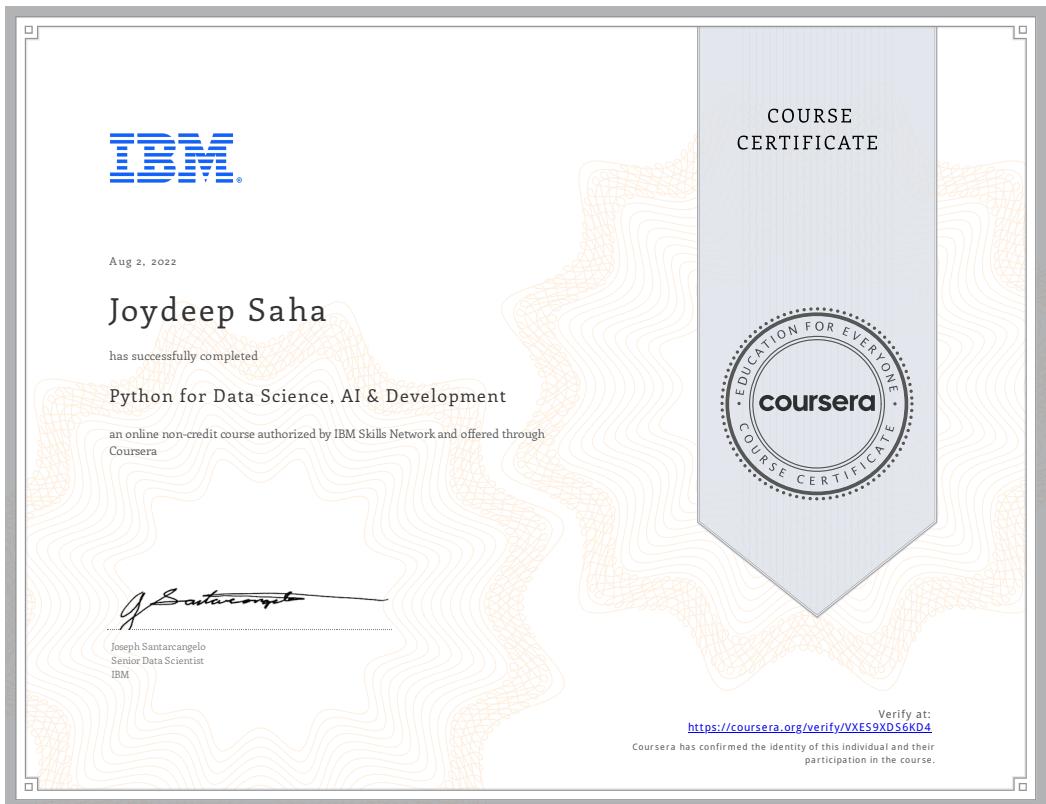
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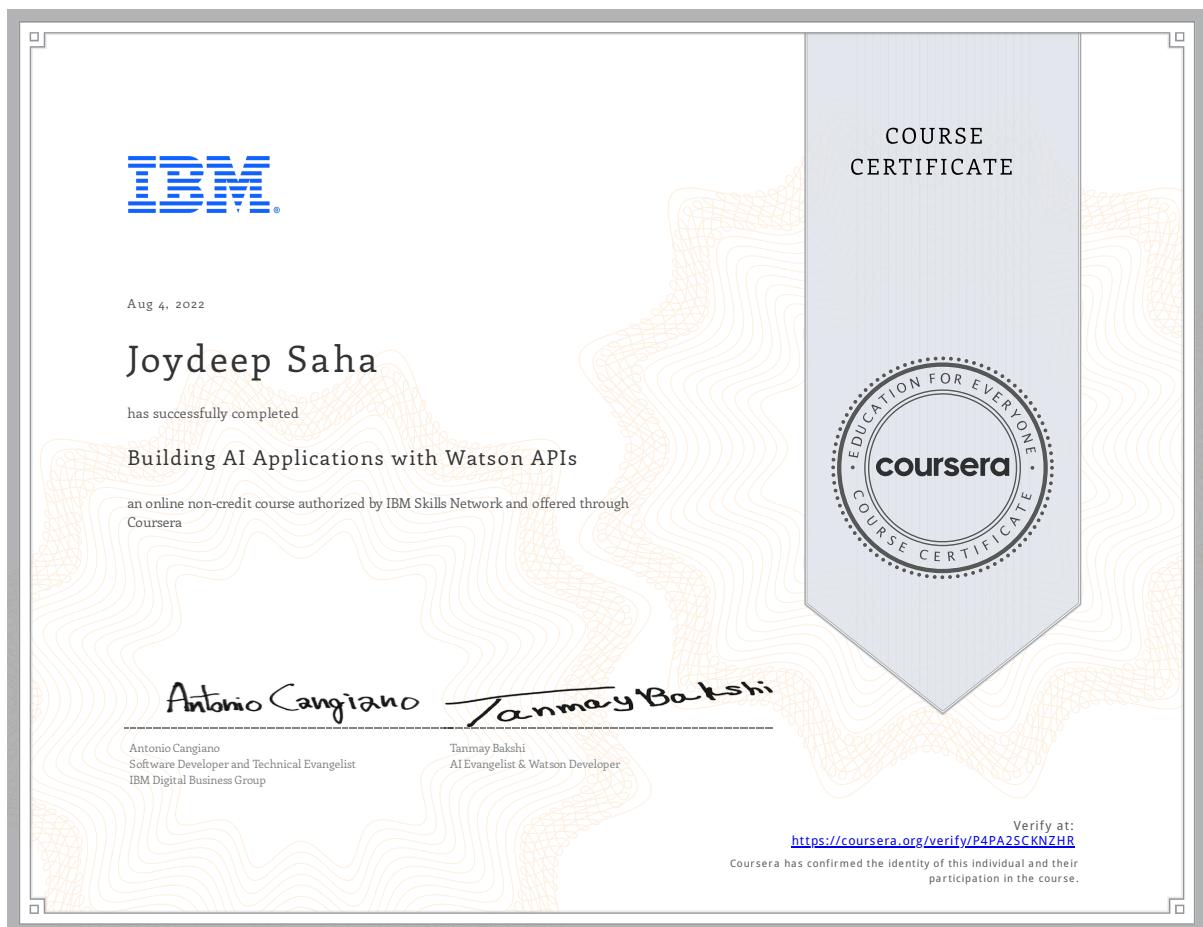
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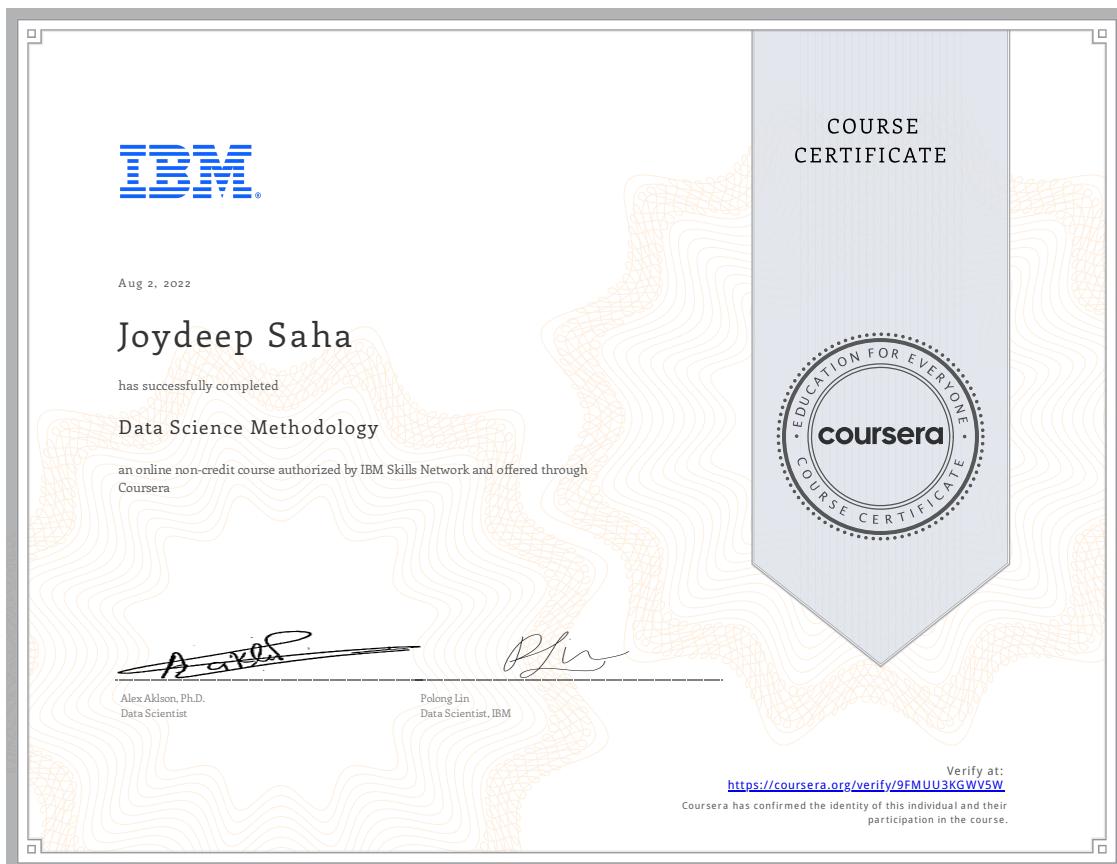
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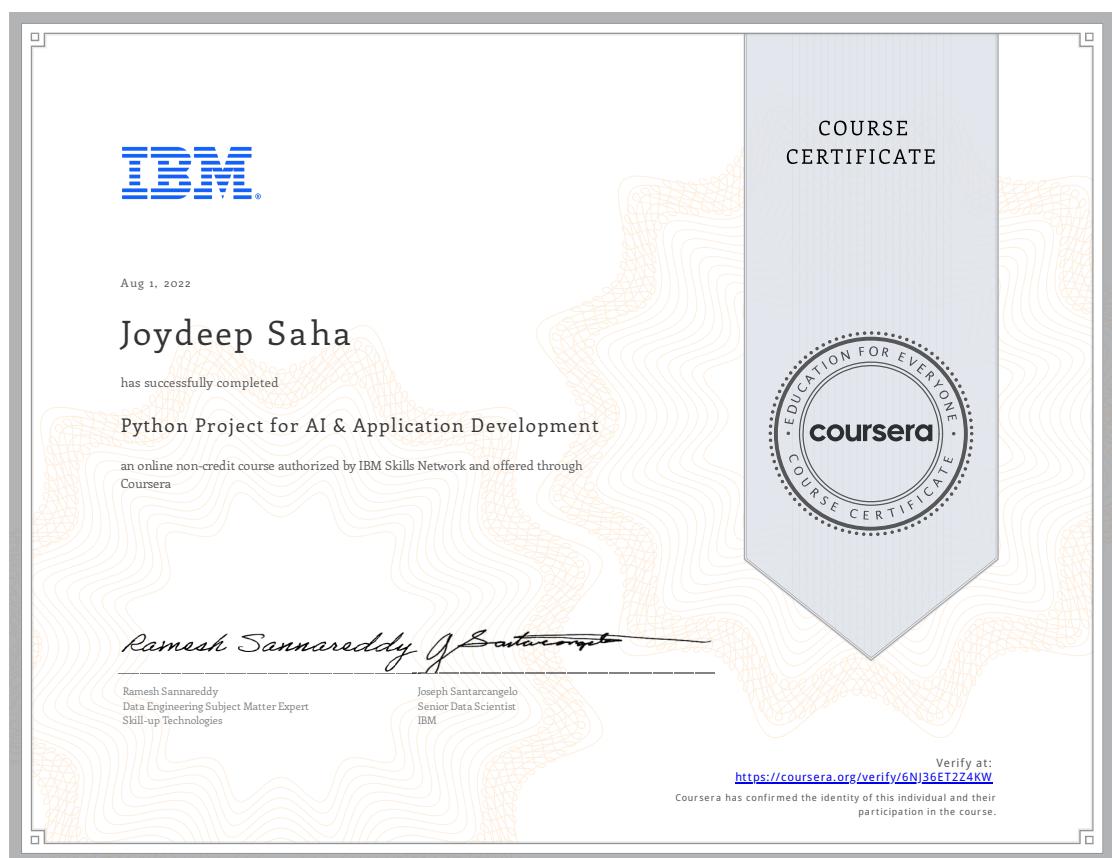
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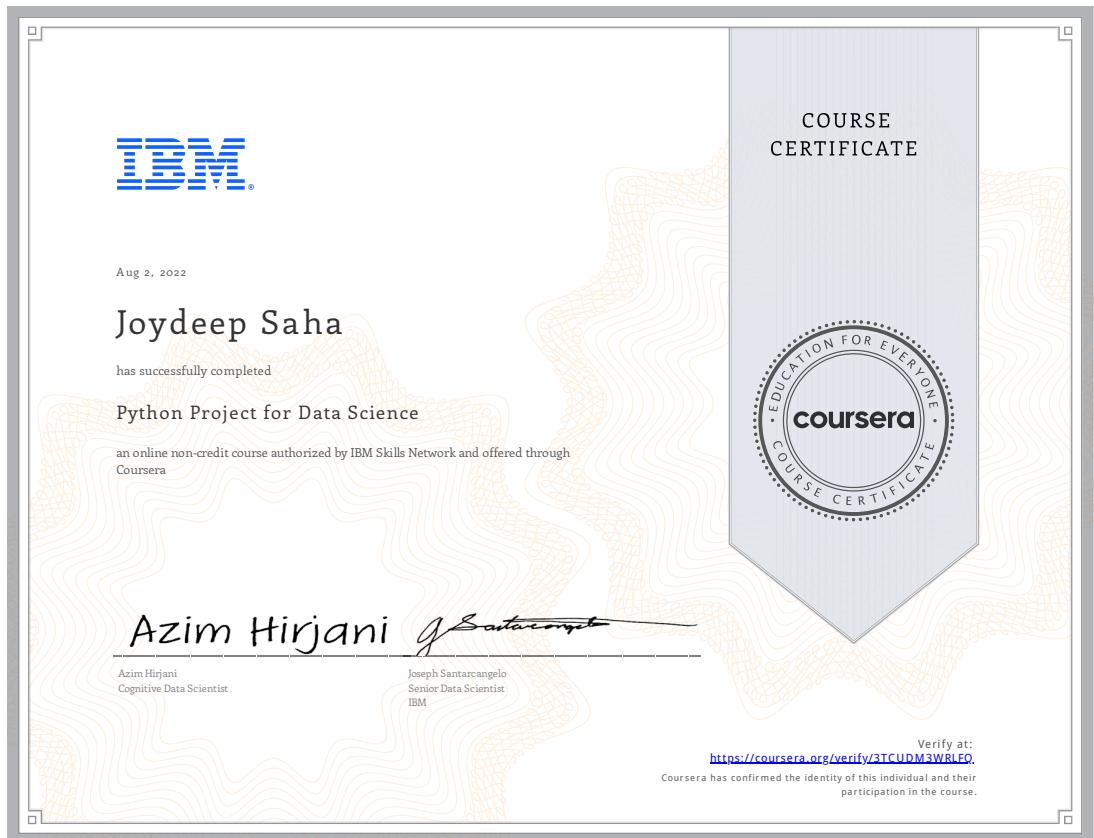
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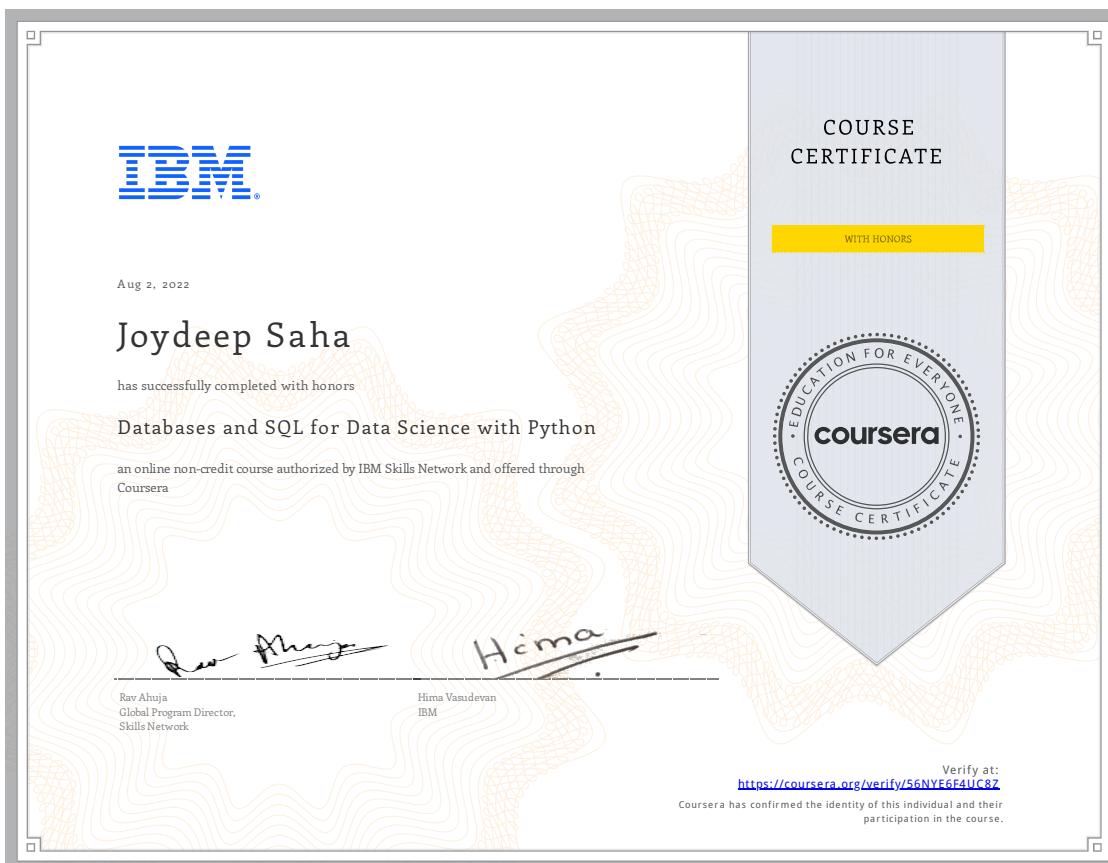
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<https://coursera.org/verify/6NJ36ET2Z4KW>



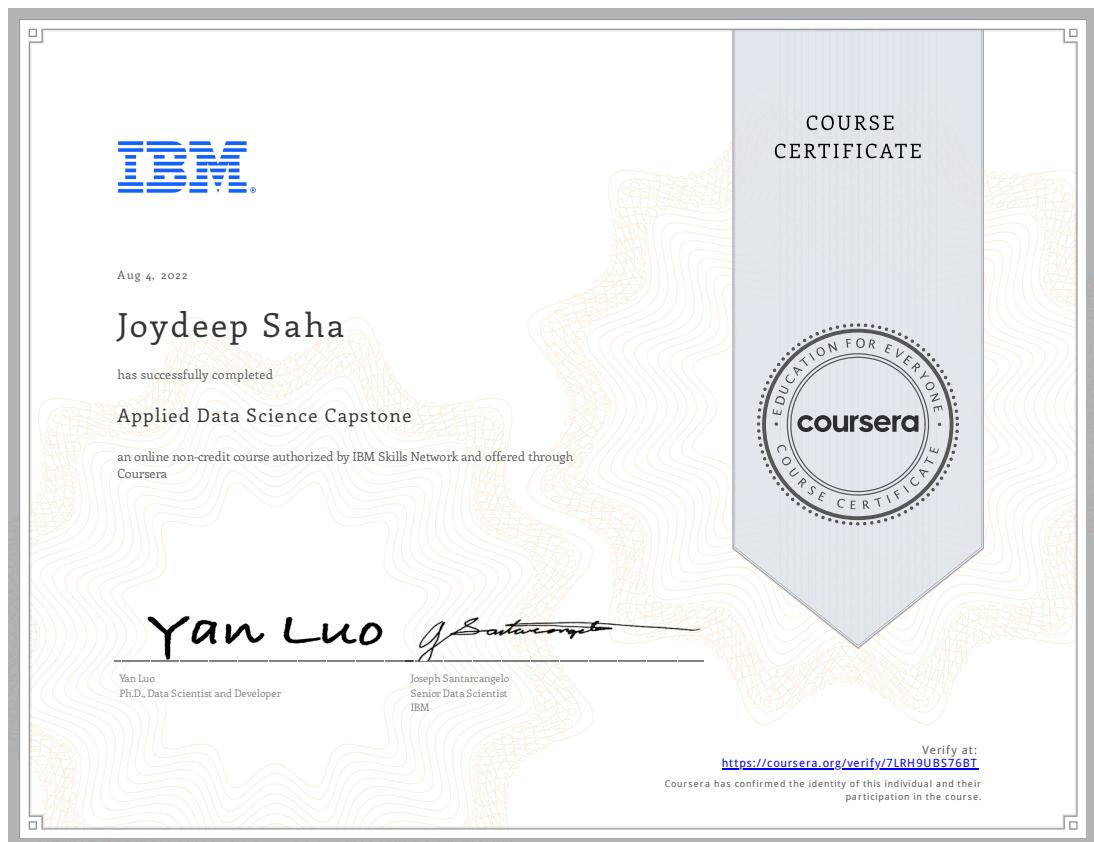
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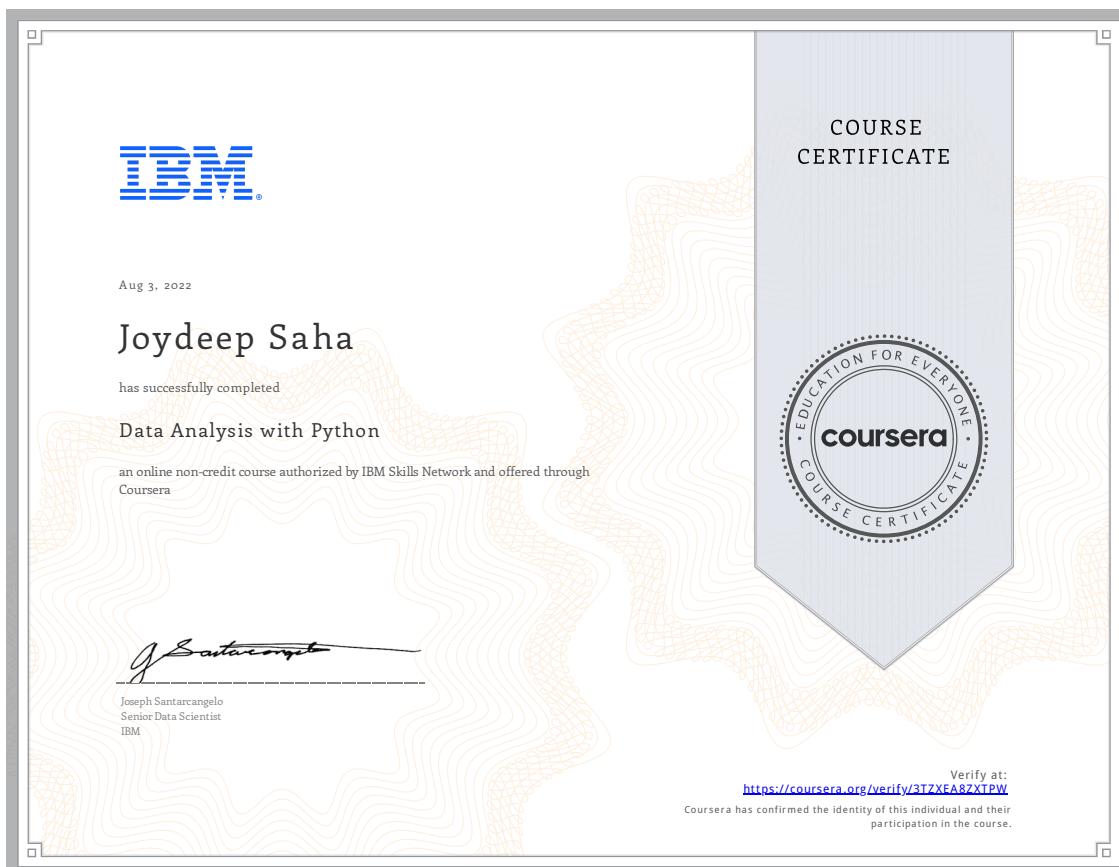
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<https://coursera.org/verify/FAZVWEWTZ59S>



<https://coursera.org/verify/7LRH9UBS76BT>



<https://coursera.org/verify/3TZXEAE8ZXTPW>



Aug 4, 2022

## Joydeep Saha

has successfully completed the online, non-credit Professional Certificate

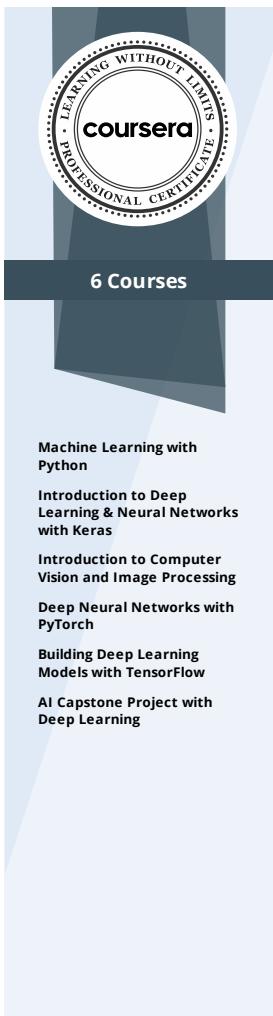
# IBM Data Science

In this Professional Certificate, learners developed and honed hands-on skills in Data Science and Machine Learning. Learners started with an orientation of Data Science and its Methodology, became familiar and used a variety of data science tools, learned Python and SQL, performed Data Visualization and Analysis, and created Machine Learning models. In the process they completed several labs and assignments on the cloud including a Capstone Project at the end to apply and demonstrate their knowledge and skills.

Rav Ahuja  
AI & Data Science  
Program Director  
IBM Skills Network

Verify this certificate at:  
<https://coursera.org/verify/professional-cert/H4AVBAM5VYYF>

<https://coursera.org/verify/professional-cert/H4AVBAM5VYYF>



Aug 1, 2022

## Joydeep Saha

has successfully completed the online, non-credit Professional Certificate

Rav Ahuja  
AI & Data Science  
Program Director  
IBM Skills Network

# IBM AI Engineering

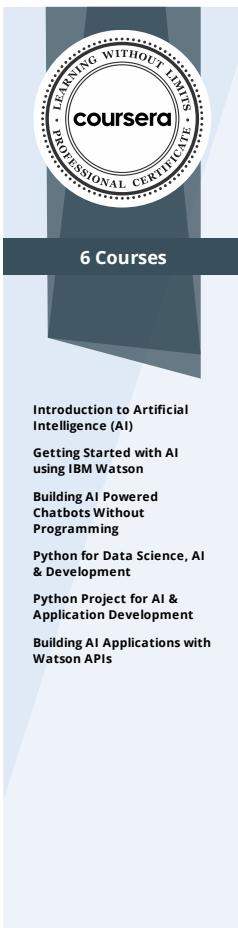
Learners who have completed this 6 course Professional Certificate have a practical understanding of Machine Learning (ML) & Deep Learning (DL). They have technical skills to start a career in AI Engineering, and can:

- Implement ML algorithms including Classification, Regression, Clustering, and Dimensional Reduction using `scipy` & `scikitlearn`
- Perform ML on Big Data and deploy ML Algorithms and Pipelines on Apache Spark
- Demonstrate understanding of Deep Learning models such as autoencoders, restricted Boltzmann machines, convolutional networks, recursive neural networks, and recurrent networks
- Build deep learning models and neural networks using Keras, PyTorch and Tensorflow libraries
- Demonstrate ability to present and communicate outcomes of deep learning projects

The online specialization named in this certificate may draw on material from courses taught on-campus, but the included courses are not equivalent to on-campus courses. Participation in this online specialization does not constitute enrollment at this university. This certificate does not confer a University grade, course credit or degree, and it does not verify the identity of the learner.

Verify this certificate at:  
<https://coursera.org/verify/professional-cert/BTH6W9UZ3NJA>

<https://coursera.org/verify/professional-cert/BTH6W9UZ3NJA>



Aug 4, 2022

## Joydeep Saha

has successfully completed the online, non-credit Professional Certificate

## IBM Applied AI

This Professional Certificate provides a firm understanding of AI, its applications, and its use cases. Learners have become familiar with IBM Watson AI services and APIs. Learners have also grasped how virtual assistant technology works as well as built and deployed an AI powered customer support chatbot on a website. Learners competing this specialization have picked up practical Python skills to work with AI and have used IBM Watson AI services and APIs to create smart applications. They have become familiar with Computer Vision, Watson Visual Recognition and OpenCV and have used them for image processing and creating custom image classifiers. Learners have also demonstrated their proficiency in applied AI by completing several hands on projects.

The online specialization named in this certificate may draw on material from courses taught on-campus, but the included courses are not equivalent to on-campus courses. Participation in this online specialization does not constitute enrollment at this university. This certificate does not confer a University grade, course credit or degree, and it does not verify the identity of the learner.

Joseph Santarcangelo  
Senior Data Scientist  
IBM

Rav Ahuja  
Global Program Director,  
Skills Network

Antonio Cangiano  
Software Developer and Technical Evangelist  
IBM Digital Business Group

Tanmay Bakshi  
AI Evangelist & Watson Developer

Ramesh Sannareddy  
Data Engineering  
Subject Matter Expert  
Skill-up Technologies

Verify this certificate at:  
<https://coursera.org/verify/professional-cert/VRUYUWQRCNCN>

<https://coursera.org/verify/professional-cert/VRUYUWQRCNCN>



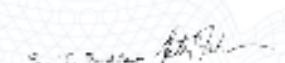
Apr 9, 2022

## JOY DEEP SAHA

has successfully completed the online, non-credit Specialization

# Business Analytics

This learner has successfully completed all five courses in Wharton's Business Analytics Specialization, and has gained the data literacy and analytic mindset necessary to describe, predict, and inform business decisions using big data in the specific areas of marketing, human resources, finance, and operations.

  
Eric Bradlow, Vice Dean;  
Brian Bushee, Peter  
Fader, Noah Gans,  
Christopher Ittner,  
Professors; Matthew  
Bidwell, Martine Haas,  
Raghu Iyengar, Sergei  
Savin, Senthil  
Veeraraghavan,  
Associate Professors;  
Ron Berman, Assistant  
Professor; Cade  
Massey, Practice  
Professor

Verify this certificate at:  
<https://coursera.org/verify/specialization/Y45YYCAMD2RW>

<https://coursera.org/verify/specialization/Y45YYCAMD2RW>



14-Apr-2022

## JOY DEEP SAHA

has successfully completed the online, non-credit Professional Certificate

# Google IT Support

Those who earn the Google IT Support Professional Certificate have completed five-courses, developed by Google, that include hands-on, practice-based assessments and are designed to prepare them for entry-level roles in IT support. They are competent in foundational skills, including troubleshooting and customer service, networking, operating systems, system administration, and security.

Verify this certificate at:

<https://https://coursera.org/verify/professional-cert/FMJ8N4QQ2JXC>

<https://https://coursera.org/verify/professional-cert/FMJ8N4QQ2JXC>



18-Apr-2022

## JOY DEEP SAHA

has successfully completed the online, non-credit Specialization

Andrew Anagnost  
President and Chief  
Executive Officer of  
Autodesk, Inc.

# Autodesk Generative Design for Manufacturing

Through this specialization, learners were introduced to the latest technology trends across the manufacturing industry, including generative design, additive manufacturing, and design for manufacturing principles. Learners explored how trends such as generative design and machine learning influence innovation and how things are made. They completed hands-on projects for the practice of job ready skills, including computer aided design (CAD), computer aided manufacturing (CAM), and computer aided engineering (CAE). The specialization focused on foundations of product innovation and generative design, while developing learners' technical skills within Autodesk® Fusion 360™.

Verify this certificate at:  
<https://coursera.org/verify/specialization/24XPA57XBJT2>

<https://coursera.org/verify/specialization/24XPA57XBJT2>



17-Apr-2022

## JOY DEEP SAHA

has successfully completed the online, non-credit Specialization

# Professional Success Skills

The Professional Success Skills Specialization from Gies College of Business at the University of Illinois at Urbana-Champaign teaches and develops skills that can support an individual in achieving success in any organization. These skills enable success in a first job and also ensure that first job is the start of a long, successful career. This specialization focuses on developing the following skills: (1) ability to recognize ethical dimensions and dilemmas in organizational decision-making; (2) engage in more creative problem-solving; (3) succeed in a team environment; (4) communicate with other members of the organization; and (5) appreciate and exhibit leadership.

W. Brooke Elliott  
Associate Dean and EY  
Professor  
Gies College of  
Business

Verify this certificate at:  
<https://coursera.org/verify/specialization/3D7WNG8S5GEQ>

<https://coursera.org/verify/specialization/3D7WNG8S5GEQ>



## COURSE CERTIFICATE

Jun 13, 2022

### Joydeep Saha

has successfully completed

#### Mastering Programming with MATLAB

an online non-credit course authorized by Vanderbilt University and offered through  
Coursera



A handwritten signature of Akos Ledeczi.

Akos Ledeczi, Ph.D.  
Professor  
Computer Engineering, Computer Science, and  
Electrical Engineering

A handwritten signature of J. Michael Fitzpatrick.

J. Michael Fitzpatrick, PhD  
Professor Emeritus  
Computer Science, Computer Engineering, Electrical Engineering, Neurosurgery, and Radiology

Verify at:

<https://coursera.org/verify/TLN22DZBZCS2>

Coursera has confirmed the identity of this individual and their  
participation in the course.

<https://coursera.org/verify/TLN22DZBZCS2>



Jammu &  
Kashmir



## Certificate of Participation

J&K and MyGov congratulates

*Joydeepsaha*

for successfully completing How well do you know Jammu & Kashmir Quiz.  
We acknowledge your efforts. Keep participating!



Dr. Rajinder Khajuria, JKAS  
Additional Secretary to Government,  
Information Technology Department, J&K



प्रदूषीलियम संरक्षण मन्त्रालय राज्य



मेरी सरकार

## CERTIFICATE

OF PARTICIPATION

PCRA & MyGov congratulate

*Joydeepsaha*

for successfully completing the  
PCRA - Conservation Quiz 9.0  
We acknowledge your effort. Keep participating.

Naveen Gulati  
Executive Director - PCRA

# Quiz Competition on National Youth Day 2022

## CERTIFICATE

This certificate declares that

*Joy Deep Saha*

Umakanta Academy

has completed



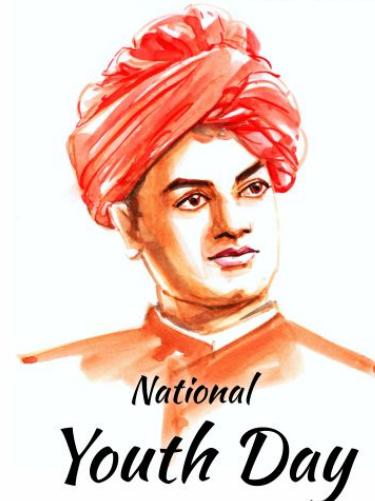
on 4/10/2022

*Quiz on National Youth Day 2022*



"Arise! Awake! and stop not until the  
goal is reached."

— Swami Vivekananda



With passing score of 100%

Certificate ID MCW4To-CE000548



**Wish you all National Youth Day**

Made for free with Certify'em



*Kendriya Vidyalaya Palampur  
Certificate of Participation*

*Quiz on National Youth Day*

This is to certify that Master/Ms. Joy Deep Saha of Class Option 1  
Is awarded this certificate of merit for Participating in

**Quiz on National Youth Day**  
with a passing percentage of 100%

Date 4/10/2022

*Prepared By: Pushpa Thakur  
Librarian*

*Principal: Sh. Lalit Kumar  
Gupta*

Made for free with Certify'em



विद्युत मंत्रालय  
MINISTRY OF  
POWER



# Certificate OF PARTICIPATION

REC & MyGov congratulate

*Joydeepsaha*

for successfully completing the

## **Smart Metering Quiz.**

We acknowledge your efforts. Keep participating!

Ms Valli Natrajan  
Executive Director, REC



# Certificate of Participation

Ministry of Education & MyGov congratulate

*Joydeepsaha*

for successfully completing the

## **Pariksha Pe Charcha 2022 Quiz.**

We acknowledge your efforts. Keep participating!



CEO, MyGov





# Certificate

-OF PARTICIPATION-

Jago Grahak Jago & MyGov congratulate

*Joydeepsaha*

for successfully completing the Quiz on Consumer Empowerment. We acknowledge your efforts. Keep participating!

**Shri Vineet Mathur**  
Joint Secretary, Department of Consumer Affairs



# Certificate of Participation

National Water Mission & MyGov congratulate

*Joydeepsaha*

for successfully completing the Water Quiz 2.0 conducted as part of  
“Jal Shakti Abhiyan: Catch The Rain” campaign  
We acknowledge your effort. Keep participating.

Shri G. Asok Kumar  
Additional Secretary & Mission Director,  
National Water Mission, Ministry of Jal Shakti



## Certificate of Participation

Ministry of Agriculture & MyGov congratulate

*Joydeepsaha*

for successfully completing the Quiz on Natural Farming.

We acknowledge your efforts. Keep participating...!

Priya Ranjan  
Joint Secretary (INM)  
Ministry of Agriculture & Farmers Welfare

✓  
Abhishek Singh  
CEO, MyGov



## Certificate of Participation

Ministry of Tourism and MyGov Congratulate

*Joydeepsaha*

For successfully completing the Dekho Apna Desh

Webinar : Munnar – My Cuppa Tea Quiz.

We acknowledge your effort. Keep participating...!

Ms. Rupinder Brar  
Additional Director General, Ministry of Tourism



# CERTIFICATE

OF PARTICIPATION



IS PRESENTED TO

## JOY DEEP SAHA

for their participation in FuturistFest 2021  
hosted by STEM Like Her

11/10/21

DATE

DENA VON DER LUEHE  
(FOUNDER OF STEM LIKE HER)

Verify at <https://verification.givemycertificate.com/v/9afdf7a4-2a9c-432b-92f3-a2b9d0de23c5>

<https://verification.givemycertificate.com/v/9afdf7a4-2a9c-432b-92f3-a2b9d0de23c5>



# CERTIFICATE

OF ACHIEVEMENT

## JOY SAHA

For securing 3<sup>rd</sup> Position in "DevDays22 (OPEN INNOVATION)"  
organized by IEEE GTBIT SB, IEEE GTBIT WIE AND  
HACKGTBIT SIG on 19th - 20th FEBURARY, 2022.

MR. MUKESH SAHU

BRANCH COUNSELLOR, IEEE GTBIT

NATIONAL INSTITUTE OF FASHION TECHNOLOGY, HYDERABAD

MINISTRY OF TEXTILES, GOVT. OF INDIA

CERTIFICATE OF PARTICIPATION

This is to certify that Mr. / Ms. Joy Deep saha

studying in class \_\_\_\_\_ of \_\_\_\_\_

school has participated in the National Level Essay Writing Competition held on the occasion of

7th National Handloom Day 2021



Rajitha  
EVENT COORDINATOR

Palini  
EVENT COORDINATOR

Director



PRESENTED TO

**Joy Deep Saha**

.....

for participating in HackVCIS, first student-run high school global online hackathon organized by Varee Chiang Mai International School

.....

Date of issue: 29/3/2022

Mrs. Varee Patravanich

Principal

Haemavith Varith (Hub)

Lead Organizer

**hackvcis**  
**2022 March 11-13**  
HACKVCIS  
CERTIFICATE  
HEALTHCARE  
TO PARTICIPATION





## CERTIFICATE OF PARTICIPATION

presented to

# JOY DEEP SAHA

In recognition of your participation at  
The Estée Lauder Companies Virtual Hackathon  
on October 28th, 2021.

MICHAEL W. SMITH

CIO, The Estée Lauder Companies

ESTÉE LAUDER COMPANIES

Hack4A::Y  
2021



Presented by



## Certificate of Appreciation

### 3M-CII Young Innovators Challenge Awards, 2021

This certificate is awarded to the team of Project

#### **“The Restructuring Of Learning”**

for their innovation that mirrors hope for a  
resurgent India, post pandemic.



# DEVELOPERWEEK™ AUSTIN

NOV 17–18, 2021 ALL-VIRTUAL

## ONLINE HACKATHON

### *Overall DeveloperWeek Austin 2021 Winners*

Winners get: (2) Amazon Echos, (Up to 5) DevNetwork Premium All-Access Passes to all 2021 virtual conferences Announcement in our email to 60,000 subscribers listing your team and project

WINNER  
**LearnZen,  
Joy Deep Saha**

# DEVELOPERWEEK™ AUSTIN

NOV 17–18, 2021 ALL-VIRTUAL

## ONLINE HACKATHON

REPLICATED

### *Replicated Challenge #1: Day 0 Deployment Challenge*

1<sup>st</sup> Place: Terra Kaffe Espresso Maker

WINNER  
**Volunteer,  
Joy Deep Saha**

Presented by



In collaboration with



**3M State  
of Science  
Index**

## **3M-CII Young Innovators Challenge Awards 2021**

### **LETTER OF MERIT FOR BEING THE FINALIST**

Dear Team of The Restructuring Of Learning

Greetings from 3M-CII Young Innovators Challenge Awards!

3M India & Confederation of Indian Industry (CII), proudly announced the winners of this season's Challenge at the CII Innovation Summit 2021 on 14th September 2021.

As **3M-CII YICA 2021** season comes to a close, we would like to **applaud your progress and achievement in the 2021 Challenge** as a **Finalist**. This year's evaluation process was both arduous and stringent and your submission made it to the top **12 Finalists** of this year's challenge. Achieving this milestone amongst 35000+ participants is remarkable! Congratulations!

We are proud to honour you with a merit badge to recognize your accomplishment in this season. You may display this badge in your professional signature, embed it in your LinkedIn profile or in your digital profile and resumes. We are also awarding you a participation **certificate** that you may need as proof of your accomplishment in the season at other future forums.

Please know that you are now part of our Alumni Database so you will receive information on upcoming activities and announcements that could be useful for you. 3M India, CII and the entire Challenge Team is inspired by your work, and we wish you the very best in your journey ahead. We thank you for your enthusiasm and commitment thus far.

Yours sincerely,

**3M-CII Young Innovators Challenge Awards Team**

*Note: This is a digital communication so no signature is required.*

**Website:** <https://3m-yica.com/>

**Email:** [3m.cii.yica@gmail.com](mailto:3m.cii.yica@gmail.com)



# Certificate

OF PARTICIPATION

This is to certify that **JOY DEEP SAHA** of **Student** has participated in

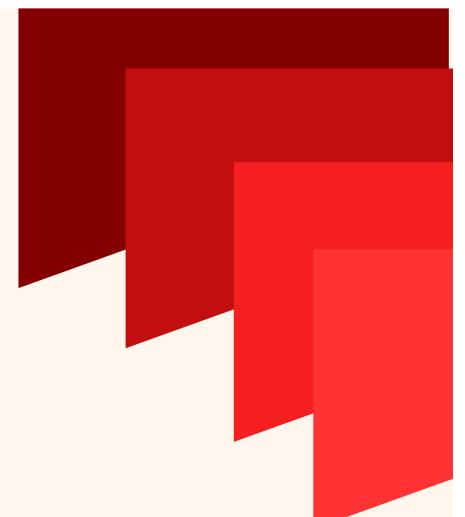
**All India Business Analytics Quiz** organised by **Tripadasoft Solutions**



scan to verify

# CERTIFICATE

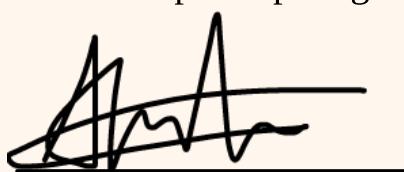
OF PARTICIPATION



PROUDLY PRESENTED TO

## JOY DEEP SAHA

for participating in the 2021 AYLUS Humanity Hacks Hackathon



**Alissa Wu**  
*Humanity Hacks Lead Organizer  
AYLUS National Co-Vice President*



12/19/2021

**Date**

*Alliance of Youth Leaders in  
the US*

**AYLUS.ORG**



SCHOOL OF STUDIES IN ENGG. & TECH.  
GURU GHASIDAS VISHWAVIDYALAYA

# CERTIFICATE

---

## OF PARTICIPATION

---

THIS CERTIFICATE IS PROUDLY AWARDED TO

### JOY DEEP SAHA

For participating in the event of "Hackbrio'22" held on '08<sup>th</sup>-11<sup>th</sup> APR'22'.  
Team Equilibrio wishes him/her best of luck for his/her future endeavours.

Congratulations!!

TEACHER  
COORDINATOR

CS/IT  
TEAM LEAD



# HackWise 2021

---

THIS CERTIFICATE IS PRESENTED TO

### JOY DEEP SAHA

of team **Byte Machianics** for completing HackWise 2021 - a virtual hackathon during 3 - 5 Dec. 2021

5th Place - **Best Gender Equality Hack**

**Monique Cheng**  
LEAD ORGANIZER



SRM INSTITUTE OF SCIENCE AND TECHNOLOGY, VADAPALANI

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



THE INSTITUTION OF ENGINEERS (INDIA)  
STUDENTS' CHAPTER



## CERTIFICATE OF PARTICIPATION

This is to certify that Mr./Ms. JOY DEEP SAHA of  
Aspiring Computer Science Student has  
participated in IEI Hackathon v1.0 conducted by The IEI Students'  
Chapter of SRM Institute of Science and Technology, Vadapalani on  
29th and 30th January 2022.

MR. S BALAJI

FACULTY CO-ORDINATOR



DR. A SHIRLY EDWARD

HEAD OF THE DEPARTMENT



## **Certificate** OF PARTICIPATION

THIS IS TO CERTIFY THAT JOY DEEP SAHA  
OF Student

HAS PARTICIPATED IN SOURCE CODE OF KASCADE  
ORGANISED BY KSHITIJ 2022, IIT KHARAGPUR.

Ms. Devaki Nandana  
Vice-President  
Technology Students' Gymkhana  
IIT Kharagpur

Mr. Vadhyam Sanjay Kumar  
General Secretary Technology  
Technology Students' Gymkhana  
IIT Kharagpur



# Certificate

OF PARTICIPATION

THIS IS TO CERTIFY THAT JOY DEEP SAHA

OF Student

HAS PARTICIPATED IN MATHS OLYMPIAD OF KASCADE  
ORGANISED BY KSHITIJ 2022 , IIT KHARAGPUR.

Ms. Devaki Nandana  
Vice-President  
Technology Students' Gymkhana  
IIT Kharagpur

Mr. Vadthya Sanjay Kumar  
General Secretary Technology  
Technology Students' Gymkhana  
IIT Kharagpur



## Certificate of Participation

This is to certify that

JOY DEEP SAHA

of Student has participated in the **Quizzard 2022** organised by  
**Symbiosis Institute of Management Studies (SIMS), Pune**





# Certificate

OF PARTICIPATION

This is to certify that **JOY DEEP SAHA** of **Aspiring Computer**

**Science Student** has participated in the **Exoplanets Quiz of**

**International Monthly Astronomy Quiz** organised by

**International Amateur Astronomical Association**



scan to verify



# Certificate

OF PARTICIPATION

This is to certify that **JOY DEEP SAHA** of **Student** has participated in

**All India Business Analytics Quiz** organised by **Tripadasoft**

**Solutions**



scan to verify



## Certificate of Participation

This is to certify that

JOY DEEP SAHA

of Student has participated in the **Murder Mystery** organised  
by Indian Institute of Management (IIM), Rohtak



## CERTIFICATE OF ACCOMPLISHMENT

IS PRESENTED TO :

*Joy Deep Saha*

For his achievements of Most Sustainable Approach Design in STEM  
Olympics competition. Held on 10 February 2022 by Ink and Metal 5773

Ink and Metal 5773  
Representatives

GENERAL INSTRUCTORS



Ink and Metal 5773  
Representatives

CREATIVE DIRECTOR



iitmadrass



# Certificate of Appreciation

This is to certify that Mr/Ms

**Joy Deep Saha**

from

Agartala, Tripura

has Ranked in the top 1% of the event

UEQ

at Shastra 2022, IIT Madras.

Nitish Gupta

Co-Curricular Affairs  
Secretary, IIT Madras

Dr. Ratna Kumar

Co-Curricular Affairs  
Advisor, IIT Madras



Blockchain Verification :

<https://click.pstmrk.it/2sm/block.cyberpeace.org%2Fdocs%2Ffa62e5dbf9d05b6d5b76828f6dbcb7f53ea85052d8f4da45798f832dc2bc621b/Dp0qICsN/Mp1h/sVpLvC3mzi/NjA1ZjkMjlwODU2OTQ2ZDhNmQ4Yzk4IDE2NDc1MDQwMTg4OTlgNjlzMmVhOTRIN2E2MTIxOTNhYzk1ZjFm>



Valedictorian Award (decade) with medal