



International
Institute of Information
Technology Bangalore

powered by

upGrad

Executive Diploma in

Machine Learning & Artificial Intelligence

With MLOps and
Generative AI Specialisations

Duration **13 months**

Largest ML & AI program in India

with 8+ Years of Legacy &
10,000+ learners





powered by

upGrad

Glimpses From Convocation Ceremony





About IIITB

The International Institute of Information Technology Bangalore (IIITB)

Established in 1998, IIITB is a premier institute known for its interdisciplinary approach, integrating technology with social sciences. Supported by the Government of Karnataka and the IT industry, IIITB fosters strong academic-industry partnerships and attracts top talent from across India and abroad through its merit-based selection process.

The institute has graduated over 3,500 students, many of whom work at leading IT companies globally. With a focus on research and development in fields like Artificial Intelligence (AI) and Machine Learning (ML), IIITB is recognised as a leader in AI education.

Ranked 74th in the Engineering category of the National Institutional Ranking Framework (NIRF) in 2022, IIITB continues to excel in education and research, making it a preferred destination for aspiring technologists and future leaders.



AICTE



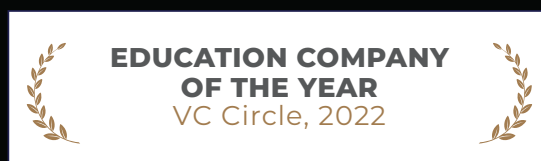
UGC

ABOUT upGrad

“upGrad is a leading global learning and workforce development company. We’re on a single-minded mission of powering career success for every member of the global workforce as their trusted lifelong learning partner. Established in 2015, we have over 10 million learners who have upskilled in a range of online and offline programs from top universities in India and the world.”



Ronnie Screwvala
Co-founder & Executive Chairman



Current Industry Trends

12.3 LPA

Average salary for Machine Learning Engineers in India (2024)

Source: Glassdoor

36.08%

CAGR of global Machine Learning market till 2030

Source: Statista

50%

Increase in search volume for 'Data Science and Machine Learning' since 2020

Source: Exploding Topics

74%

Annual increase in growth of AI and Machine Learning jobs since 2020

Source: Careerist

\$503.4B

Size of global machine learning market by 2030

Source: Statista

Program Highlights

Here are the top reasons why you should consider this program



Hands-On Learning

Gain Practical Experience by building AI Apps



Popular Tools

Master 20+ in-demand Programming & AI tools



Python Bootcamp

Beginner-Friendly sessions with Real-World Projects



Specialisations

MLOps & Generative AI for In-Demand Skills

Industry Hiring Partners



Program Impact: Success Stories

Before upGrad

Tejasvy Gunturu 

Application
Development Associate




After upGrad



Application Development
Analyst

Before upGrad

Vijeet Ved 

System Engineer



After upGrad



IT Analyst

Before upGrad

Krish 

Deputy Manager



After upGrad


Lead Engineer

Before upGrad

Vikas Kumar Gupta 

Data Scientist



After upGrad


Senior Data Scientist

Before upGrad

Sunil Acharya 

Software Engineer



After upGrad


AI Engineer

Program Completion Certificate



Earn valuable credentials with an Executive Diploma in Machine Learning and Artificial Intelligence-equivalent to a 1-year PG Diploma and accredited with NAAC A+ (2021). Join India's largest ML AI alumni network of over 10,000 professionals.

Faculty



Dr. Debabrata Das
Director of IIITB



He has received his PhD from IIT-KGP. His main areas of research are IoT and Wireless Access Network.



Prof. Chandrashekar Ramanathan
Dean Academics, IIITB



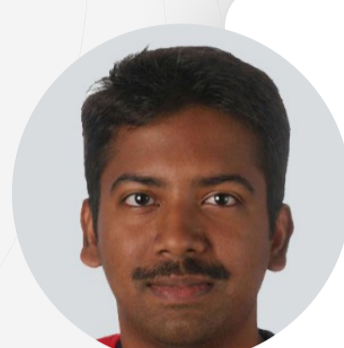
Prof. Chandrashekar has a PhD from Mississippi State University and experience of over 10 years in several multinational organisations.



Prof. G. Srinivasaraghavan
Professor, IIITB



Prof. Srinivasaraghavan has a PhD in Computer Science from IIT-K and 18 years of experience with Infosys Technologies and several other companies.



Dr. Dinesh Babu Jayagopi
Professor, IIITB



Dr. Dinesh is currently an Associate Professor at IIIT-B where he heads the Multimodal Perception Lab. His research interests are in Audio-Visual Signal Processing, Machine Learning, and Social Computing. He obtained his doctorate from Ecole Polytechnic Federale Lausanne (EPFL), Switzerland.



Chandrashekar Ramanathan
Professor & Dean (Academics)



Prof. Chandrashekar is a faculty member at IIIT-B since 2007 serving as professor, researcher and administrator. He has been working in the field of Computing for over 25 years in various capacities across industry and academia.



Tricha Anjali
Ex-Associate Dean



Prof. Anjali has a PhD from Georgia Institute of Technology as well as an integrated MTech (EE) from IIT Bombay.

Industry Experts



Mirza Rahim Baig
Startup Mentor



Analytics Lead, Zalando Mirza is a veteran professional with 10+ years of experience in application of data science, machine learning in e-commerce and healthcare.



Team Lead - Product Analysis



Marketing Analytics Visiting Professor



Ex-Analytics Lead



Anand
CEO



A Straive Company

CEO, Gramener A gold medallist from IIM Bangalore, an alumnus of IIT Madras and London Business School, Anand is among the top 10 data scientists in India with 20 years of experience.



Faculty



Principal



Ex-Consultant



Abhishek Vijayvargia
Principal Machine Learning Engineer



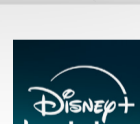
Having worked with Microsoft as a Senior Data Scientist, he is an alumnus of IIT Kharagpur with 10+ years of experience in a Data Science domain



Ex-Senior Data Scientist



Sajan Kedia
Sr. Engineering manager



Senior Engineering Manager, Hotstar Sajan has extensive experience in the field of ML, Big Data, Data Science, and AI.



Sr. Engineering manager



Machine Learning Engineer



Machine Learning Research Engineer



Rajesh Sabapathy
CEO

Sr. Data Scientist, Healthcare sector

AI/ML leader, fortune 5 Healthcare Giant. Has driven innovation in healthcare using deep learning and big data. With expertise in Python, R, and cloud platforms.



Business Intelligence Unit (ICICI)



Ujjayini Mitra
Chief Data Officer, Zee5



Head of Analytics, Zee5. An alumna of McKinsey and Co., Flipkart, and Bharti Airtel with over 11 years of experience.



Head of Data



Head Analytics, VP Strategy



Associate Director - Analytics CP Business Finance

Learn by Doing

Your Program Journey



Phase I
Core Curriculum
(40 weeks, 24 credits)

Phase III
Capstone
(3 weeks, 5 credits)

Phase II
Specialisations
MLOps/GenAI
(17 weeks, 7 credits)

Core Curriculum

The common phase of the curriculum will equip you with the foundational tools and concepts for Machine Learning and AI.

Topics

- ▶ Python Programming for Data Science
- ▶ Exploratory Data Analysis
- ▶ Inferential Statistics & Hypothesis Testing
- ▶ SQL - Basic and Advanced
- ▶ Linear Regression
- ▶ Logistic Regression
- ▶ Naive Bayes
- ▶ Model Selection Principles
- ▶ Advanced Regression Techniques
- ▶ Decision Trees
- ▶ Clustering techniques
- ▶ Random Forests
- ▶ Boosting
- ▶ Dimensionality Reduction Techniques (PCA)
- ▶ Neural Networks
- ▶ Convolutional Neural Networks
- ▶ Recurrent Neural Networks
- ▶ Lexical Processing
- ▶ Syntactic Processing
- ▶ Semantic Processing

Projects:

- ▶ **Lending Club Case Study:**
Analyse previous loan application data using EDA to identify factors influencing loan default risk.
- ▶ **Bike Sharing Demand Prediction:**
Build a regression model to predict the demand for shared bikes for BoomBikes, a US bike-sharing provider, to help them understand supply and meet demand of bikes and plan logistics.
- ▶ **Telecom Churn Prediction:**
Analyse customer-level data from a leading telecom firm and build an ML model which can predict if the customer will churn or not in a particular month based on the past data.
- ▶ **Melanoma Detection Assignment:**
Build a CNN based model which can accurately detect melanoma.
- ▶ **Syntactic Processing Assignment:**
Build a custom NER to get the list of diseases and their treatment from the dataset. Develop a system that can effectively process the sentence data and the associated labels, which represent information about diseases and treatments.
- ▶ **Automatic Ticket Classification Assignment:**
Build a model that can automatically classify customer complaints based on the products and services that the ticket mentions.
- ▶ **Gesture Recognition Project:**
Build a gesture recognition system that can recognise five different gestures performed by the user which will help users control the TV without using a remote.

Tools



MLOps Specialisation

In this specialisation you will design, build, and automate machine learning systems using MLOps principles, focusing on MLflow, Airflow, and deployment, with practical applications in NLP, computer vision, and continuous learning, through hands-on projects.

Topics

- ▶ Prerequisites for MLOps - Clean Coding Principles, Unit Testing, Exception Handling and Logging
- ▶ Introduction to MLOps - ML System Design Process, Building blocks of MLOps stack
- ▶ Designing Machine Learning Systems - Identifying the business context of a ML problem, Experimenting with data and models using MLflow
- ▶ Building continuous learning infrastructure - Automating machine learning pipelines with Airflow
- ▶ Advanced NLP techniques - Introduction to Attention Mechanism and Transformers
- ▶ Advanced computer vision techniques - Object Detection & Semantic Segmentation
- ▶ Deployment of deep learning models using MLOps principles

Projects:

- ▶ **MLOps Project:**
Create an end-to-end pipeline for CodePro to reduce their customer acquisition costs in the long run.
- ▶ **MLOps + Deployment: DL (Case Study):**
As a data scientist at a healthtech startup, create a ML solution that automates the conversion of free-text clinical notes into structured data for analytics, reducing manual errors and labour by including experiment tracking, model deployment and continuous monitoring.

Tools



GenAI Specialisation

- ▶ Generative AI Landscape, Prompt engineering techniques
- ▶ Working with OpenAI APIs
- ▶ System Design and Advanced prompt engineering principles
- ▶ Advanced NLP: Introduction to Attention Mechanism and Transformers
- ▶ Vector Databases and Retrieval-Augmented Generation
- ▶ Building LLM applications using LangChain
- ▶ Building LLM applications using Llamaindex
- ▶ Fine Tuning Large Language Models
- ▶ Scale and Deploy Generative AI Apps
- ▶ Fundamentals of Multimodal models like Stable Diffusion, Mid Journey

Projects:

- ▶ **ShopAssist Project:**
Develop a laptop shopping assistant chatbot using OpenAI chat completions and 'function calling' to create a streamlined and efficient GenAI-powered application.
- ▶ **SemanticSpotter Project:**
Develop a strong generative search system that can efficiently and precisely respond to inquiries from diverse policy documents, using LangChain or LlamaIndex.
- ▶ **Mr.HelpMate AI Project:**
Build a robust generative search system capable of effectively and accurately answering questions from a policy document.

Tools



Capstone Projects

Choose from industry-relevant domain-based capstone projects that are relevant to your specialisation:



Credit Card Fraud Detection

- ▶ Develop an accurate machine learning model to detect credit card fraud in imbalanced datasets, leading to significant fraud loss reduction.
- ▶ Conduct cost-benefit analysis and present key insights and financial benefits to stakeholders.



Computer Vision Modelling

- ▶ Build a CNN-RNN deep learning model with an attention mechanism capable of describing image contents verbally using caption generation.
- ▶ Enable visually impaired individuals to receive verbal descriptions of images, enhancing accessibility.



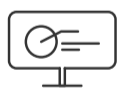
Sales Forecasting

- ▶ Develop a sales forecasting model using vector autoregression to improve forecast accuracy and optimize store operations over the next six weeks.
- ▶ The model should incorporate promotions, competition, and seasonal effects.



Healthcare Image Modelling

- ▶ Develop a GAN to translate MRI images between T1 and T2 weighted scans, generating realistic, high-contrast images.
- ▶ Enhance diagnostic accuracy by providing multiple imaging perspectives from a single scan.



News Recommendation

- ▶ Build a personalized news recommendation system suggesting top articles and similar content based on user interactions.
- ▶ Increase user engagement by ensuring relevance and accuracy through evaluation with RMSE, MAE, and precision metrics.



Product Recommendation

- ▶ Develop a dynamic product recommendation system integrating sentiment analysis to tailor suggestions based on user feedback.
- ▶ Deploy the system using Flask, enhancing recommendations through optimal text classification models.

Rich and Dedicated **Live Support**

Industry expert sessions

Engage with industry practitioners as they help you master in-demand skills and concepts using a demonstrative hands-on approach.



IITB faculty sessions

Learn from some of the most accomplished academicians as they take your knowledge and understanding of data science to another level.



Personalised industry sessions

Participate in focussed sessions within a limited audience group as industry experts dive deeper into the industrial and business-related aspects of various advanced topics and technologies.



Career mentorship sessions

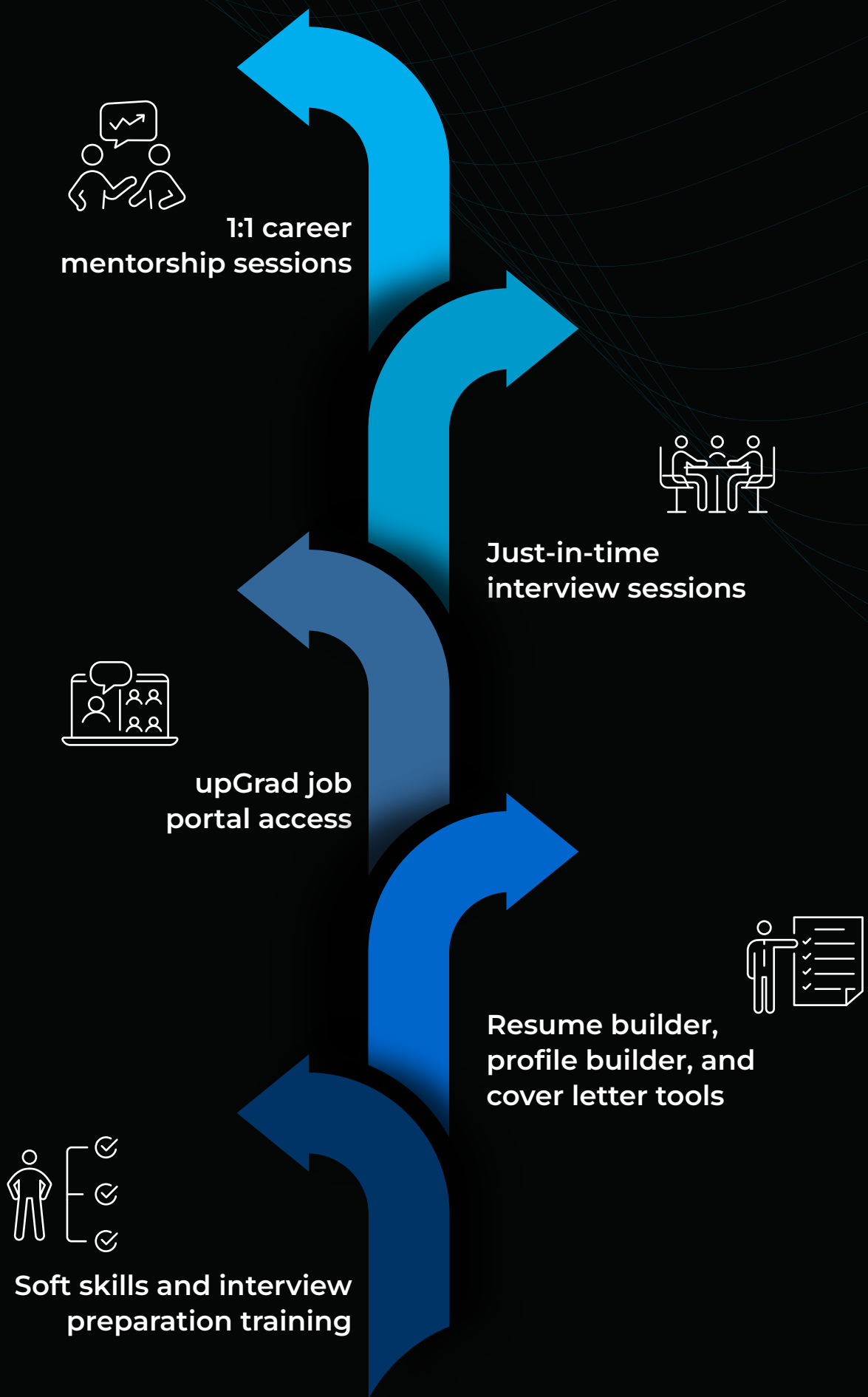
Engage in personalised career mentorship connects with industry experts as they guide you on the best practices for your career future and even help you be better prepared via mock interviews.



Doubt resolution sessions

Join doubt resolution session slots and have an expert available to resolve your queries for a smooth learning journey.

Effective Career Support



Student Support

Telegram channel for learner communications

Cohort Telegram channel for instant doubt resolution and timely program updates and announcements.

Non-academic and non-technical query assistance

Get help with any non-academic or non-technical queries and updates through buddy sessions.

Completion Support

Personalised assistance for smooth program completion, managing backlogs, and cohort deferrals with free and paid waiver options

Personalised support

Personalised assistance tailored to individual learner requirements.

Financial benefits

Access benefits like referrals and repeats by sharing details with your upGrad buddy.

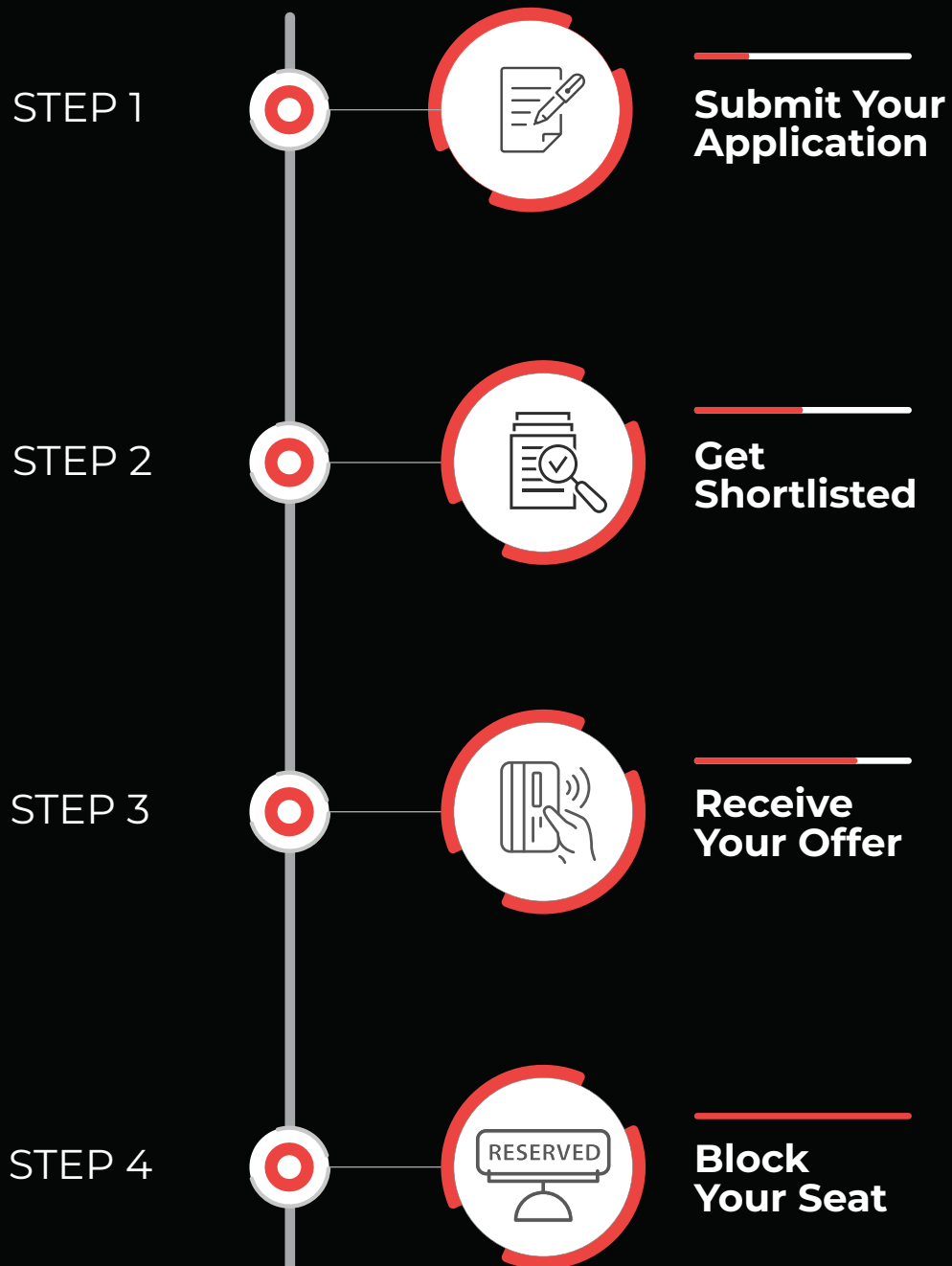


Option to articulate to a Master's degree
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LET'S TALK

