**CORPORATE GURUKUL**

#GoodToGreat

# Global Academic Internship Programme (GAIP) - Intermediate

World's First Experiential On-Campus Academic Internship in Big Data Analytics using Deep Learning

**NUS** National University of Singapore | School of Computing

**Beyond the Classroom. Prepare for the Future.**

# From the Founder
**Mr Rajesh Panda**

Dear Educators, Parents and Students,

In the realm of education, the journey from good to great is not just a destination; it's a relentless pursuit. At Corporate Gurukul, we believe that every student, guided by dedicated educators and supported by caring parents, has the potential to embark on this remarkable journey.

Our vision is one of transformation through applied learning experiences—a vision that extends beyond the conventional boundaries of education. We firmly believe that knowledge finds its true purpose when it is applied to solve real-world problems, when it ignites the flame of curiosity, and when it fuels the engine of innovation.

To the parents who entrust us with the dreams of their children, we understand the magnitude of your faith. We promise to provide a learning journey that transcends excellence—an experience that equips your children not only with knowledge, but also with the skills and values they need to become extraordinary individuals.

To our extraordinary students, you are the heart and soul of our institution. Your potential knows no bounds, and your journey from good to great begins here. Through immersions, you will broaden your horizon, discover yourself and your passion; through internships you will gain real-world insights and apply your knowledge on real-world problems; through research you will innovate better products to address challenges of people and planet.

Together, let us embark on this extraordinary journey—an expedition from good to great, where every student is empowered to make a lasting impact on the world. We are here to guide, support, and celebrate your achievements. Welcome to Corporate Gurukul, where education becomes the bridge to greatness, and together, we shape a future of boundless possibilities.

Empowering global leaders with
**160,000 alumni across 36 countries**

Exclusive programmes to **enhance your profiles**

Study at **QS World Top 10 University** Campuses
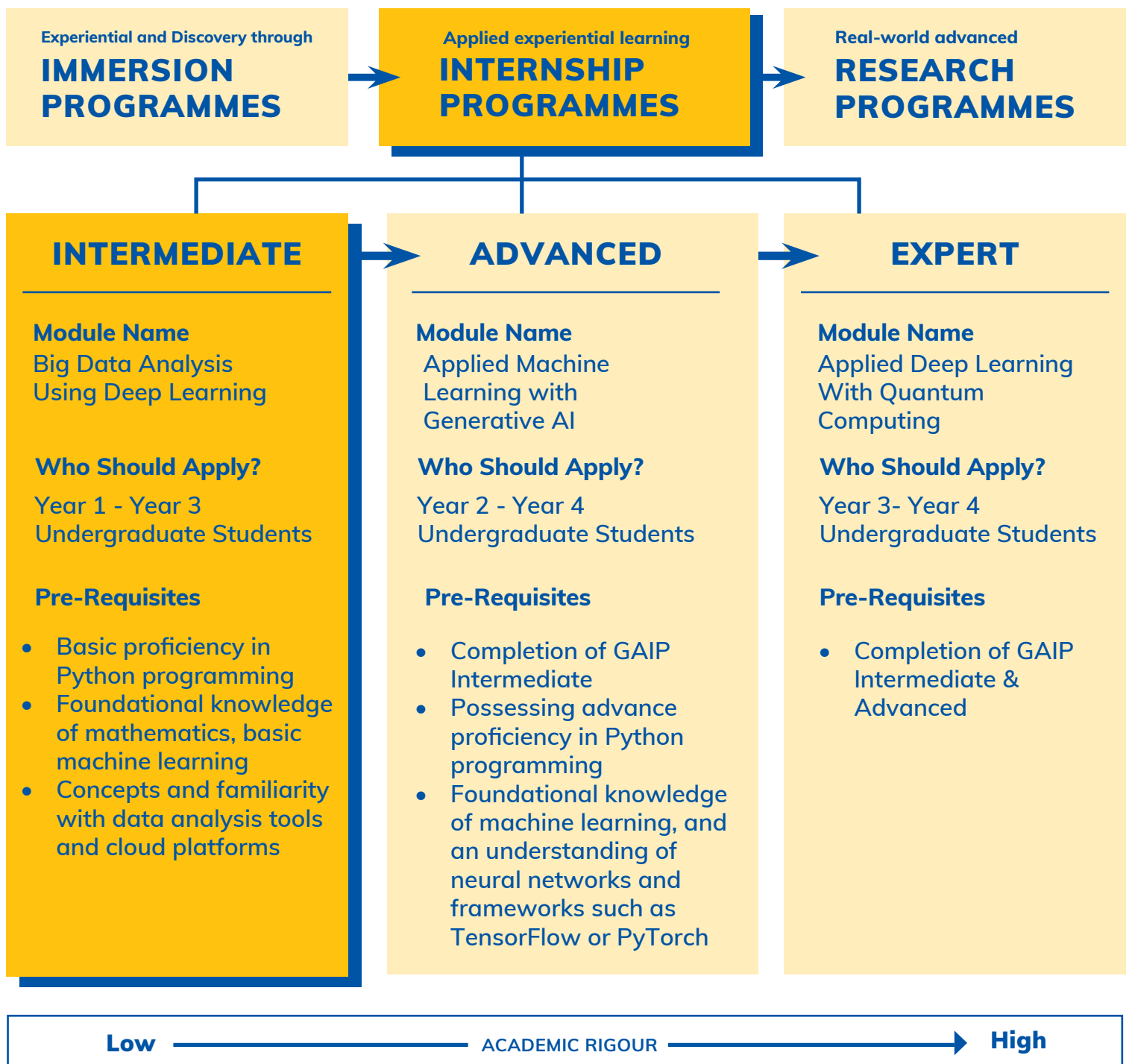
Intern with
**Fortune Top 10 Companies**

With Corporate Gurukul, engage in

# ACADEMIC INTERNSHIP LEARNING JOURNEY IN AI FOR ENGINEERING AND TECHNOLOGY STUDENTS

The GAIP Learning Journey is structured into a three-stage modular pathway, providing a comprehensive introduction to transformative fields such as AI, Machine Learning, Deep Learning, and Quantum Computing. It begins with **GAIP Intermediate**, which lays a strong foundation in **Big Data Analytics using Deep Learning**, progresses to **GAIP Advanced**, focusing on **Applied Machine Learning with Generative AI**, and culminates in **GAIP Expert**, specializing in **Deep Learning with Quantum Computing**.

Experiential and Discovery through
## IMMERSION PROGRAMMES

Applied experiential learning
## INTERNSHIP PROGRAMMES

Real-world advanced
## RESEARCH PROGRAMMES

## INTERMEDIATE

**Module Name**
Big Data Analysis
Using Deep Learning

**Who Should Apply?**
Year 1 - Year 3
Undergraduate Students

**Pre-Requisites**

- Basic proficiency in Python programming
- Foundational knowledge of mathematics, basic machine learning
- Concepts and familiarity with data analysis tools and cloud platforms

## ADVANCED

**Module Name**
Applied Machine
Learning with
Generative AI

**Who Should Apply?**
Year 2 - Year 4
Undergraduate Students

**Pre-Requisites**

- Completion of GAIP Intermediate
- Possessing advance proficiency in Python programming
- Foundational knowledge of machine learning, and an understanding of neural networks and frameworks such as TensorFlow or PyTorch

## EXPERT

**Module Name**
Applied Deep Learning
With Quantum
Computing

**Who Should Apply?**
Year 3- Year 4
Undergraduate Students

**Pre-Requisites**

- Completion of GAIP Intermediate & Advanced

**Low** ──────── ACADEMIC RIGOUR ────────▶ **High**

# Global Academic Internship Programme (GAIP) - Intermediate

GAIP is an experiential, on-campus, academic internship focused on real-world projects in Artificial Intelligence, Data Analytics, Big Data, Machine Learning, Deep Learning and IoT. It is designed for engineering undergraduates from universities and institutes across Asia, aiming to enhance their skills and align their learning with advanced studies or research careers in Data Science and AI.

Offered in partnership with the NUS School of Computing, GAIP provides a rigorous and collaborative learning experience. This unique on-campus internship gives you an opportunity to work with a global team of ambitious, hand-picked curious learners to drive value through innovation.

**Duration**
10 Days, On Campus at NUS, Singapore

**Pedagogy**
Seminar and Project-Based Learning

**Who should apply?**
Undergraduate University students

Since its launch in 2016, the GAIP Programme has **empowered over 1500 students from 150+ universities across India, USA, Canada, UAE, UK, Singapore and Australia** significantly enhancing their profiles for **MS opportunities in QS Top 50 Universities worldwide**



**111 students**
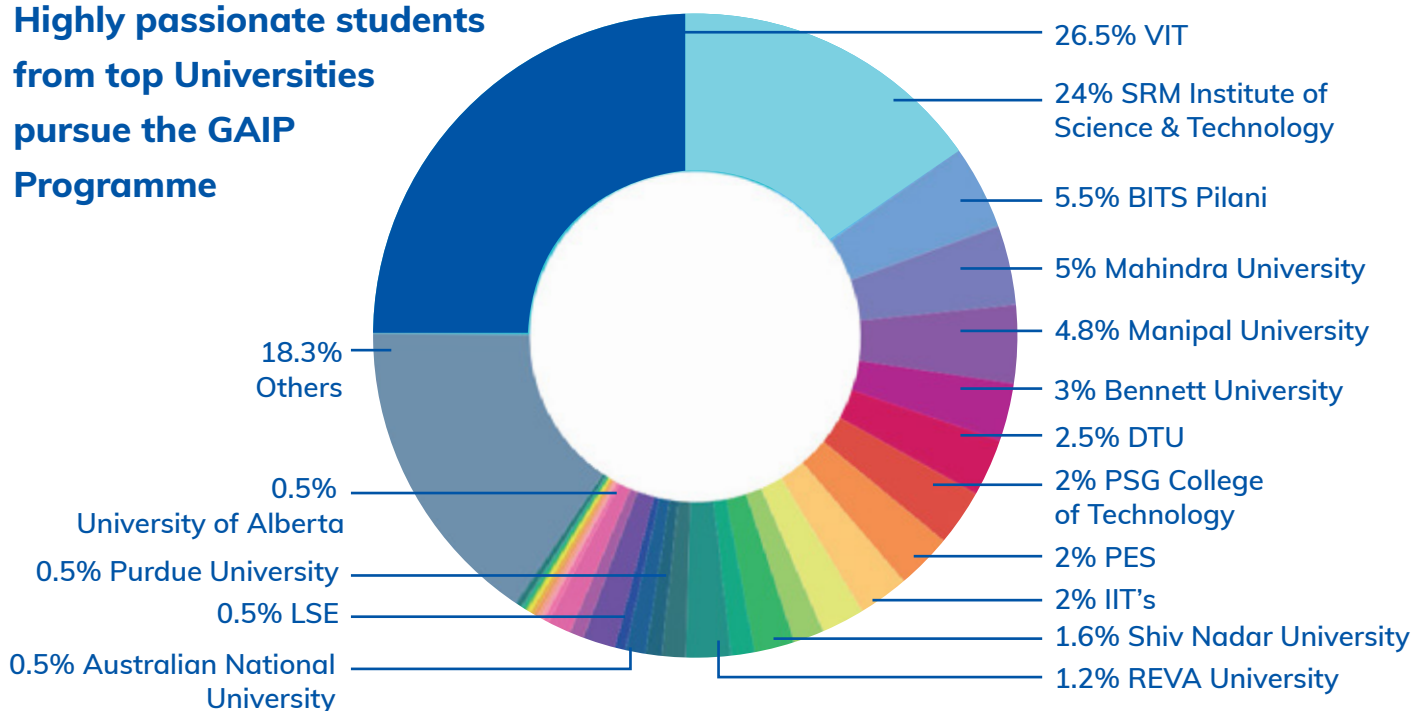Average cohort size for last 7 years

**7.7/10** Average CGPA of Cohort
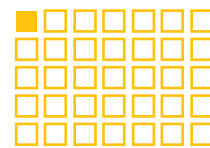
**1:35** selection ratio ensuring highly ambitious student peer group

## Highly passionate students from top Universities pursue the GAIP Programme

26.5% VIT

24% SRM Institute of Science & Technology

5.5% BITS Pilani

5% Mahindra University

4.8% Manipal University

3% Bennett University

2.5% DTU

2% PSG College of Technology

2% PES

2% IIT's

1.6% Shiv Nadar University

1.2% REVA University

18.3% Others

0.5% University of Alberta

0.5% Purdue University

0.5% LSE

0.5% Australian National University

## EXPERIENCE SINGAPORE
Ranked World #1 in Education
Gateway to Asia

## EXPERIENCE NATIONAL UNIVERSITY OF SINGAPORE (NUS)
QS World Ranked #8 University

## PRACTICAL AND ADVANCED LEARNING
Explore and learn with faculty and industry practitioners on advanced GenAI, ML, IoT and Deep Learning concepts and apply them in projects addressing real-world challenges







## ACCESS EXPERT MENTORING
Learn and immerse with faculty from NUS

## ENHANCE YOUR PROFILE FOR MS ABROAD IN TOP UNIVERSITIES
On completion, receive a Letter of Evaluation from NUS, Certificate of Completion from NUS and Corporate Gurukul

## BUILD A GLOBAL NETWORK
Interact, innovate and collaborate with young and ambitious like-minded peers from across the globe

# Level Up with the Future-Ready Curriculum
## EXPLORE. EXPERIENCE. ACHIEVE.

With an unparalleled focus on emerging technologies, the programme offers a rigorous, hands-on learning experience focused on emerging technologies. This programme is designed to catapult them into advanced studies and high-impact careers in the tech industry, making them the innovators of tomorrow.

### Introduction to Big Data and Machine Learning Fundamentals

Introduction to Big Data, including its definition, characteristics, and ecosystem challenges. Covers machine learning fundamentals, tools like Amazon Sagemaker, and hands-on implementation of ML pipelines, including feature engineering, training, and model evaluation.

### Deep Learning Fundamentals Artificial Neural Networks (ANN)

Introduction to Deep Learning with an overview of AI history and key concepts like Artificial Neural Networks (ANN). Includes building basic ANN models and perceptron classifiers with hands-on practice using TensorFlow and Keras.

### Convolutional Neural Networks (CNN) and Computer Vision

Focuses on Convolutional Neural Networks (CNN), their components like convolutional layers, filters, and pooling. Practical applications include building CNNs for image classification, implementing transfer learning, and exploring computer vision applications like object detection and semantic segmentation

### Natural Language Processing (NLP) with Deep Learning

It covers natural language processing (NLP) with topics such as RNNs, encoder-decoder networks, attention mechanisms, and transformers. Includes hands-on labs using pre-trained models for tasks like sentiment analysis and language translation

### Final Project Presentations Applying Big Data and Deep Learning Concepts

Students present their final projects, showcasing their understanding and application of Big Data Analytics and Deep Learning concepts learned throughout the course.

# Inspiring curiosity and encouraging innovation
## COMPREHENSIVE, PRACTICAL AND FORWARD-THINKING EXPERIENCE

### #WhyPursueGAIP

10 days to change your life, transform your knowledge, and prepare you for the future. From deep learning to Gen AI to NLP, you will design, build and create to solve real-time problems.

Through this internship you will be able to:

- **Strengthen your foundation** in Neural Networks with hands-on exercises using TensorFlow and Python to build practical skills

- **Understand and apply concepts** of Convolutional and Recurrent Neural Networks to solve diverse real-world problems.

- **Explore text mining concepts** such as classification, clustering, and association to extract actionable insights.



- **Learn generative AI models** like GANs, VAEs, and transformers while addressing ethical considerations in applications.

- **Build and train models** effectively using advanced techniques like Gradient Descent, Back-Propagation, and Reinforcement Learning

### #HowDoYouLearn



Immersive learning deeply engages students through real-world scenarios and hands-on experiences, enhancing comprehension, retention and critical thinking

**Classroom Training:** understanding core concepts

**Class assignments:** apply core concepts to practise

**Quiz:** continuous assessment

**Projects:** collaborative group projects, mentored by NUS

**Presentations:** group assessment of applied learning

# Experience Global Learning at
# ASIA'S BEST UNIVERSITY



**NUS**
National University of Singapore

**QS WORLD UNIVERSITY RANKING #6 BY SUBJECT**
**Computer Science & Information Systems 2024**

Established in 1905, the National University of Singapore (NUS) is a global leader in higher education. NUS offers an exhilarating environment for learning and innovation. The NUS School of Computing, ranked #6 globally in the QS World University Rankings by Subject 2024., excels in areas like AI and fintech, attracting top talent and fostering groundbreaking research. Its vibrant entrepreneurial ecosystem, including The Furnace startup incubator, fuels creativity and leadership, making it an inspiring place to study and thrive in a connected world.

## LEARNING OUTCOMES ALIGNING MS ABROAD

- **Data Analytics:** Dive into text mining processes with skills in classification, clustering, and association to derive actionable insights

- **Machine Learning:** Develop expertise in core techniques like regression, classification, and clustering for robust data analysis

- **Deep Learning:** Build practical proficiency in neural networks, including ANN, CNN, and RNN, through TensorFlow and Python exercises

- **Generative AI:** Explore advanced models like GANs, VAEs, and transformers while addressing ethical considerations and real-world applications

- **Reinforcement Learning:** Understand and implement key algorithms such as Monte Carlo, Temporal Difference, and Dynamic Programming for problem-solving

# Access and learn from
# DISTINGUISHED FACULTY

## DR. TAN WEE KEK

**Subject Expert:**
Specializes in teaching senior undergraduates to develop enterprise information systems, focusing on information security management and concepts of mobile and ubiquitous commerce

**Professional Career:**
Extensive experience in consumer-based information technology, including online decision aids, social computing, virtual worlds, and consumer cloud services. Research is grounded in design science, a widely adopted problem-solving paradigm in information systems

**Educational Career:**
Holds a PhD in Information Systems (July 2013) and a Bachelor of Computing in Information Systems from the National University of Singapore

Associate Professor
School of Computing (SoC)

## DR. AMIRHASSAN MONAJEMI

**Subject Expert:**
AI and Data Science to adult learners, AI Machine Learning, and Data Science

**Professional Career:**
Lifelong Education (SCALE) teaching AI and Data Science to adult learners. Before joining NUS, he was with the Faculty of Computer Engineering, University of Isfahan, Iran, where he was serving as a professor of AI, Machine Learning, and Data Science

**Educational Career:**
BSc and MSc in Computer Engineering at Isfahan University of Technology (IUT), and Shiraz University. PhD in computer engineering, pattern recognition and image processing, from the University of Bristol, Bristol, England

Senior Lecturer
School of Computing (SoC)

## SOW JIN SZE

**Subject Expert:**
Data Analytics, Data Visualisations, and Predictive Analytics.

**Professional Career:**
Ms Samantha Sow is a Senior Lecturer from the Department of Information Systems and Analytics at NUS Computing. Before joining NUS, she worked as a lecturer at Temasek Polytechnic.

**Educational Career:**
She received her Masters in Education from the University of Sheffield, and a Bachelor of Engineering (First Class) with majors in Communications and Network, from the National University of Singapore.

Lecturer
School of Computing (SoC)

# Student Case Studies
# EMPOWERING INNOVATORS OF TOMORROW

**Addressing real-world challenges** with professional researchers at the best universities

# Tiger Identification Using Deep Learning

**Project By:**

Shamayita Biswas, SRM Kattankulathur

Harshdeep Thatiparti, Mahindra University

Vanad Gupta, BITS, Goa

Sri Divija, Mahindra University

Aarsh Mishra, Delhi Technological University

## Problem Statement

Traditional methods for monitoring tiger populations, such as direct tracking and trap cameras, are dangerous, disruptive, and labor-intensive. This project aims to develop a deep learning model to identify and distinguish tigers based on their stripe patterns, enhancing accuracy and efficiency.

## Methodology

Motion-activated cameras captured tiger images, which were then filtered, annotated, and standardized. ResNet50 was used for feature extraction and fine-tuned with the tiger dataset. Data augmentation techniques were applied. The model was trained, validated, and integrated for real-time processing, automating tiger identification and reducing human intervention.

## Key Insights

**Enhanced Accuracy and Efficiency:** Deep learning models like ResNet50 significantly improve tiger identification accuracy and efficiency.
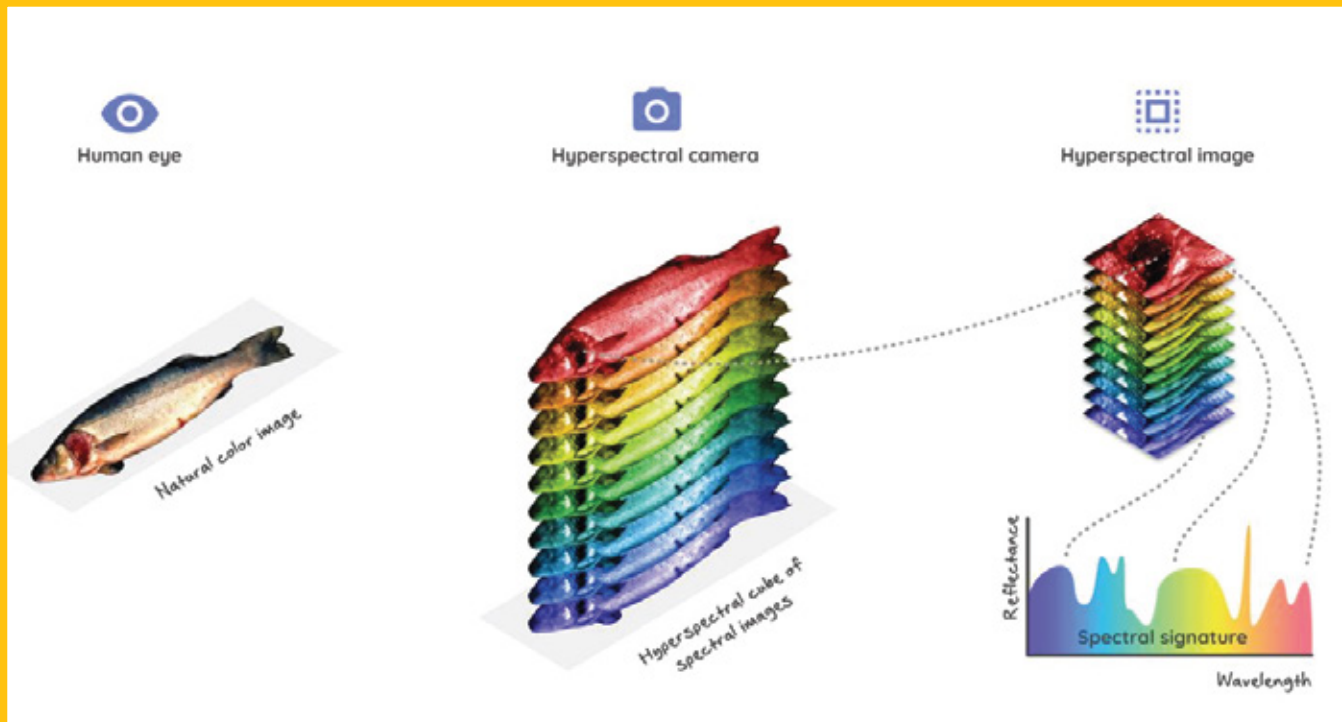
**Reduction in Human Labor**: Automating the process reduces the need for human intervention, cutting down on labor requirements.

**Cost Savings:** Automation reduces expenses related to human labor and logistics for wildlife monitoring.

## Solutions

The project developed a deep learning model using ResNet50, which was able to distinguish between individual tigers with high accuracy. This innovative approach streamlines the monitoring process, reduces human error, and provides more reliable data for conservation efforts. **The model achieved a training accuracy of 96.41%** and a validation accuracy of 91.01%, **with a test accuracy of 90.47%.**

Human eye — Natural color image

Hyperspectral camera — Hyperspectral cube of spectral images

Hyperspectral image — Spectral signature — Reflectance — Wavelength

**Case Study 2**

# Remote Sensing Earth Classification Using Hyperspectral Imaging

**Project By:**

Kesava Sriram Kothamasu, SRM University

Sarvesh Prakash, VIT Chennai

Sanjana Muthukumar, MIT Bangalore

Manav Shah, VIT Vellore

Aayushi Baijal, VIT Vellore

## Problem Statement

Traditional 2D imaging fails to differentiate similar land covers or detect subtle vegetation changes, causing inefficiencies in crop management, environmental monitoring, and urban planning. Hyperspectral imaging (HSI) captures detailed spectral data across a wide range of wavelengths, enhancing decision-making in critical sectors.

## Methodology

HSI was used for remote sensing data classification. Data from Indian Pines and Salinas were preprocessed with Independent Principal Component Analysis (IPCA), reducing spectral bands to 20 and transforming spatial dimensions to 11x11. Models were trained and evaluated using 3D Convolutional Neural Networks (3D CNN) and Residual Neural Networks (ResNet), with an 80/20 train-test split.

## Key Insights

**Enhanced Detail:** HSI provides superior material identification over RGB and multispectral imaging.
**Improved Accuracy:** 3D CNN and ResNet significantly boost classification performance.
**Model Comparison:** Both models showed strong performance with detailed metrics.
**Practical Use:** HSI shows promise in precision agriculture, environmental monitoring and urban planning.

## Solution

The project showcased HSI's superiority over traditional 2D imaging by using 3D CNN and ResNet architectures to classify data from the Indian Pines and Salinas datasets, leading to better spectral and spatial classification performance. The ResNet model outperforms 3D-CNN, **achieving higher test accuracy of 99.41% on Indian Pines** and **99.15% on Salinas,** compared to 3D-CNN's 98.93% and 99.17%, respectively.

# Life after the programme
## STUDENT OR ALUMNI, YOU ARE ALWAYS A BIG PART OF OUR FAMILY!

- Join the league of alumni from World top 50 universities

- Get an edge in employment, higher studies or research

- Opportunity to get your paper **published** in top journals and even get a **patent!**

- Collaborate with talented peers from India's esteemed universities

## Top Participating Universities

| | | | |
|---|---|---|---|
| IIT Bombay | IIT Madras | IIT Delhi | IIT Kharagpur |
| BITS Pilani | | VIT Institute of Technology | |
| Delhi Technological University | | SRM Institue of Science & Technology | |
| National Institute of Technology, Surathkal | | Manipal Academy of Higher Education | |
| National Institute of Technology, Tiruchirappalli | | National Institute of Technology, Rourkela | |

**Satviki Das**
**Vellore Institute of Technology**

The GAIP programme at NUS was an amazing experience. Balancing academics and exploring Singapore was challenging but rewarding. The curriculum, focused on AI and Data Analytics, was super aligned with MS abroad and research careers. Professors were really approachable and supportive, which made learning so much easier. This programme not only boosted my academic knowledge but also made me more independent and better at time management. Overall, it was an enlightening and fun journey that broadened my horizons.

**Amritha Prasad**
**SRM University**

The rigorous curriculum has equipped me with deep knowledge in machine learning and deep learning. Learning from the best professors globally and collaborating on group projects has honed my teamwork skills. The organized and disciplined environment in Singapore has taught me punctuality, organization, and etiquette. This programme has been more than just educational; it has instilled patience, cultural awareness, and a strong work ethic in me. I highly recommend this transformative programme for its comprehensive approach to both technical and personal development.

Experience
# TRANSFORMATIVE EXPERIENCES



**Define and Solve Problems**



**Teamwork and Collaboration**





**Independent Living in Singapore**





**Exposure to Adapt to Global cities, cultures, cuisines and people**

# SHAPING THE FUTURE OF TOMORROW'S YOUTH



**Focused Learning on Future Skills**



**Building Confidence for MS Abroad**



**Professional Communication**



**Take back friends for life**



**Teamwork, collaboration and practical experience**

## #HowToApply?



APPLY ON WEBSITE → TAKE ELIGIBILITY TEST → ATTEND INTERVIEW → RECEIVE OFFER LETTER → PAY PROGRAMME FEE → RECEIVE ADMISSION LETTER

With Corporate Gurukul, engage in

# APPLIED EXPERIENTIAL LEARNING, WHERE ACADEMIC BRILLIANCE MEETS REAL-WORLD CHALLENGES

**#WhyWeExist**

We create empathetic leaders of tomorrow who understand themselves and the world around them. We want to inspire and equip them with knowledge and skills to identify and solve real-world problems.

**Driving excellence** since 2007, with **95% alumni** admitted to **QS Top 50 Universities**

**#WhatWeDo**

**Immersion** is your journey to self-discovery - where you broaden your horizons, delve deep into understanding your true self, and uncover your passions. This transformative experience is essential for personal growth and clarity about your future path.

**Internships** are the bridge between your passion, theoretical knowledge and real-world application, providing a platform to test your skills in practical scenarios, develop prototypes, and create tangible products. This hands-on experience is invaluable, equipping you with insights and expertise that can only be gained outside the classroom.

**Research** is the cornerstone of innovation. It's about diving into first principles and rigorously evaluating how existing products can be significantly improved. This process is not just about incremental changes but about envisioning and creating impactful solutions that address the pressing challenges faced by both people and the planet.

Together, these three experiences form a comprehensive journey, preparing you to not only understand and navigate the world but also to meaningfully contribute to it, creating a lasting impact on society and environment. This holistic approach ensures that you are equipped to innovate and lead with purpose.
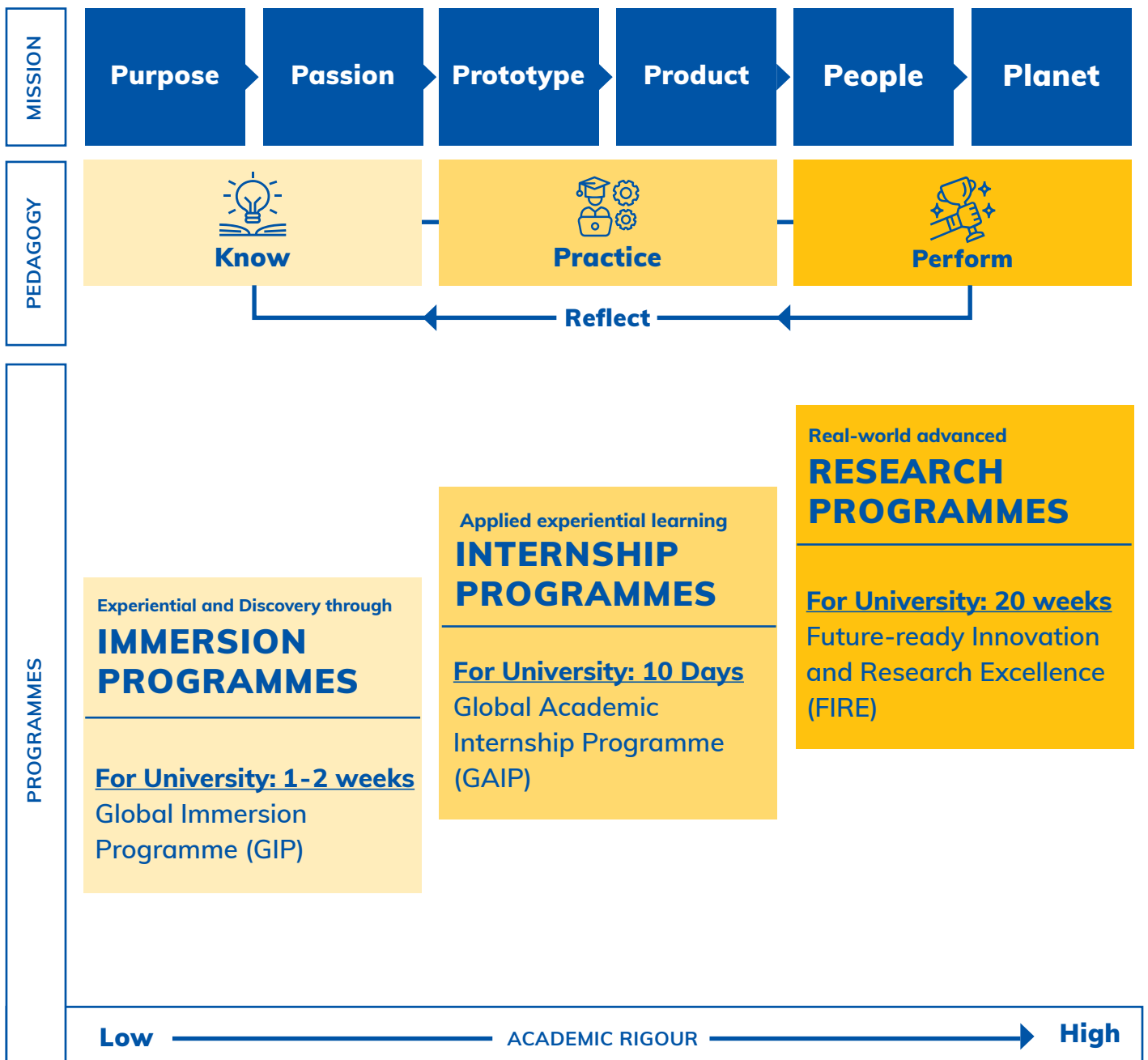
## Making the BEST get BETTER!

Dive into a transformative learning journey inspired by the 'Gurukul' philosophy, where lifelong learning meets real-world challenges. Our programmes are crafted to nurture you into critical thinkers, problem solvers, and independent decision-makers, equipped to thrive in a global environment. You immerse in global environment, learning and cultures through our immersions. You solve real-world problems through internships. You deep dive into global challenges through intense research.

**No matter your path - corporate career, top universities, or academic exploration - we are here to help you take your Purpose and Passion to People and Planet!**

**MISSION**

| Purpose | Passion | Prototype | Product | People | Planet |

**PEDAGOGY**

Know | Practice | Perform

← Reflect ←

**PROGRAMMES**

Experiential and Discovery through
**IMMERSION PROGRAMMES**

**For University: 1-2 weeks**
Global Immersion Programme (GIP)

Applied experiential learning
**INTERNSHIP PROGRAMMES**

**For University: 10 Days**
Global Academic Internship Programme (GAIP)

Real-world advanced
**RESEARCH PROGRAMMES**

**For University: 20 weeks**
Future-ready Innovation and Research Excellence (FIRE)

**Low** —— ACADEMIC RIGOUR ——→ **High**

Power Up Your Dreams!
# LEARN BY DOING

Ignite your passion and leave a mark on the planet for the better!

With our **selection ratio** as high as **1:35**, learn with the brightest minds from around the world

## #HowDoWeDoIt?

Our approach integrates the 4-stage pedagogy with our 6P philosophy, ensuring participants achieve goals while making a meaningful impact on society and the environment. This comprehensive approach equips learners with the knowledge, skills, and mindset needed for lifelong success and positive impact.

Conceptual training with our top Global Partner(s)
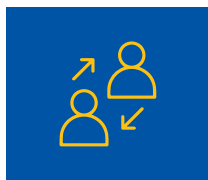
1:1 Mentoring with Certified Experts

Individual/Team Assessment (assignments and quiz)

Real world Internship/Research Project (team projects and presentation)

Certificate, Transcript and LoR from our Global Partner(s)

## #WhyShouldYouJoinOurGlobalCareerProgrammes?

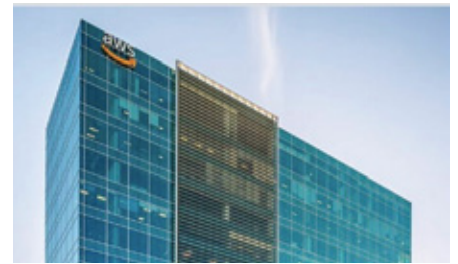| **Innovative Curriculum** | **Selective and Elite** | **Global Alumni Network** | **Scholarship Success** |
|---|---|---|---|
| **90% alumni voted** that **80% of the curriculum** offered was **new and relevant,** aligning to MS abroad | Impressive **selection ratio of 1:35**, maintaining top caliber cohort of the best participants | **95% alumni** admitted to **QS Top 50** Universities. Global network of **1,60,000 alumni** across **36 countries** | Over **90% alumni** secured a minimum of **50% scholarship** in top Universities across the globe |

# Learn with Top-Tier
# GLOBAL PARTNERS



**NUS**
National University of Singapore

**QS WORLD UNIVERSITY RANKING #8**



**Stanford University**

**QS WORLD UNIVERSITY RANKING #5**



**aws**

**INDUSTRY LEADER IN AI**



**HARVARD STUDENT AGENCIES**

**LEADING STUDENT AGENCY WORLDWIDE**



**Hewlett Packard Enterprise**

**INDUSTRY LEADER IN TECHNOLOGY**



Immerse yourself in experiential learning, vibrant cultures, and dynamic business landscapes across 3 top global cities and 3 top universities. Receive world-class training, mentorship, assessments, and certifications from our world-class partners.

# Move from #GoodToGreat

**Rooted in a unique blend of tradition and innovation, our programmes draw inspiration from ancient wisdom while integrating modern methodologies tailored to the demands of contemporary work life.**

**As your inspiring coach, enabler, and companion, we serve as your impact window, illuminating the path to realizing your full potential. With a focus on nurturing empathetic leadership qualities and fostering a global perspective, Corporate Gurukul equips students with the skills, mindset, and support needed to excel in their academic pursuits and beyond.**

**Join us on this transformative journey and walk the path of #GoodToGreat**