TCR INNOVATION

TECHNICAL
CODING
RESEARCH
INNOVATION

DEEP LEARNING WITH COMPUTER VISION

NOVEMBER 27, 2021 | 2 MONTHS

INTERNSHIP PROGRAM

Mentor
Rishav Das

Visit Us:
tcrinnovation.co.in

Contact Us:
tcrinnovation@tcrinnovation.co.in

ABOUT US

OUR MOTTO

TCR Innovation stands for Technical Coding & Research Innovation and believes in bridging the gap between students and their knowledge in the industrial field & bringing them a step closer to their Dream.

TRENDING PROGRAMS

We conduct our Internship Programs based on the current trends and the need of the Industry. We provide Live 1:1 Training Sessions on Google Meet and also provide recordings for Life-Time. Get trained for industry.

INTERNSHIPS

Get first-hand exposure to working in the real world, build your professional network, integrate classroom knowledge and theory with practical application and skills developed in professional or community settings.

RESEARCH AND INNOVATION

Investment in discovering new technology and increasing the capacity of a firm involves brainstorming, ideation, product and development research, or similar techniques to tap into creative thinking and test concepts within the company and its market.

ALWAYS REMEMBER!

To educate students to become quality techno-crafts for taking up challenges in all facets of life

-MISSION, TCR Innovation

What we think?

Change is Inevitable and to be a part of this everchanging IT industry one must be ready with latest IT technologies and TCR innovation helps you in being updated and ready for the industry.

Before Registrations

Before being a part of any Internship Program OR any courses, an intern is given a free orientation where all the concept, design & method of the program are explained and also we show the projects the intern gets to work on and then the intern enroll's for the Internship-Training Program or courses.

What sets you apart from the competition?
the Non-technical skills that you learn with us!

The communication, networking, resume building, profiling, and social skills, etc. Growing your Github & Linkedin account which helps you in making your profile strong.We also take your Mock Interviews (Technical And HR Round both) so that you are prepared in advance before you sit for a real interview.

TCR
INNOVATION

WHY SHOULD YOU JOIN TCR?

Interactive Learning

The world has changed a lot with the due course of time and with that our traditional learning methods have also changed, Interactive Learning is the future where the mentor is not monotonous but has its own way of fun & Interactive Learning where you will get knowledge in a more profound way.

Mentoring

To be the best version of yourself you need the best mentor who can help you carve your own journey. Mentors at TCR are experienced people and currently active members of the industry. We handpick the best available mentors for you so that you can focus more on learning and exploring.

Projects

We handpick the best projects for you, so that not only get theoretical knowledge and practical knowledge but along with that you get a hands-on experience on working on live projects. Projects also help to clear the conceptual knowledge you get and also are a integral part of your resumes and help you to stand-out from the crowd.

Self Development

Make yourself knowledgable and proficient in your domain is not enough this days due to drastic increase in the competition in the industry. As a candidate you need to have Leadership, Communication, Presentation, Social skills as well which will help you grow and get your desired spot in the industry, TCR will not only give you opportunities to develop those skills but help you in developing them as well.

ABOUT MENTOR

Rishav Das

Rishav Das is the Lead of Automation (Data Science & Artificial Intelligence) at Wipro. He has solved 60+ Research use cases, published 45+ Patents (received 23 grants) across various countries. He is also a Member of the Advisory Council at Indika AI.

Expertised in below skills:

Artificial Intelligence:

Machine Learning | Deep Learning | NLP/NLU/NLG | CV | HMI | Time Series Modeling | Fuzzy Logic | Expert Systems | Recommendation Systems | Cognitive Computing | Feature Engineering | Predictive Analytics | Robotic Process Automation

Big Data:

Hadoop, HDFS, MapReduce, Apache Spark, Pig, HBASE, Hive, Flume, Zoo Keeper, Yarn, Mahout, Oozie, Data Warehouse(Openstack), Data Mining, SQL, MongoDB, Cassendra, NoSQL, GraphQL.

IT Infrastructure (Data Storage & DevOps):

System Engineering | Enterprise Storage System SAN/NAS | AWS | Azure | GCP | Jenkins | Jfrog | SonarQube | Docker | Kubernetes | Ansible

Programming: Python(Expert), Core Java, R, JavaScript, React Native(Beginner)

Innovation & Research:

Worked in 60+ Research use cases, published 46+ Patents (received 23 Grants) across countries.
Neural chip model
IT Infrastructure Automation

Rishav Das
Senior Data Scientist

innovaccer

Alumni

wipro

BITS Pilani
Pilani | Dubai | Goa | Hyderabad

Mentor

TCR INNOVATION

THE UNIVERSITY OF TEXAS AT AUSTIN

Inventor

INTELLECTUAL PROPERTY INDIA

UNITED STATES PATENT AND TRADEMARK OFFICE DEPARTMENT OF COMMERCE

European Patent Office

CNIPA
China National Intellectual Property Administration

speaker

CII
Confederation of Indian Industry
125 Years - Since 1895

TCR
INNOVATION

SALIENT FEATURES OF
THIS COURSE

- **40+ Hours of Live Intensive Training**

- **13+ Hours of Hands-on Assignments and Projects**

- **Career, Interview, Internship and Placement guidance**

- **Lifetime Access to Latest Content**

- **Learn from the Experts**

- **24X7 Support through Discussion form**

DEEP LEARNING WITH COMPUTER VISION

Machine Learning is the future

"Artificial Intelligence, deep learning, machine learning — whatever you're doing if you don't understand it — learn it. Because otherwise you're going to be a dinosaur within 3 years." ~Mark Cuban

Machine Learning is the core subarea of artificial intelligence. It makes computers get into a self-learning mode without explicit programming. When fed new data, these computers learn, grow, change, and develop by themselves.

Data science can be defined as a blend of mathematics, business acumen, tools, algorithms, and machine learning techniques, all of which help us in finding out the hidden insights or patterns from raw data which can be of major use in the formation of big business decisions.
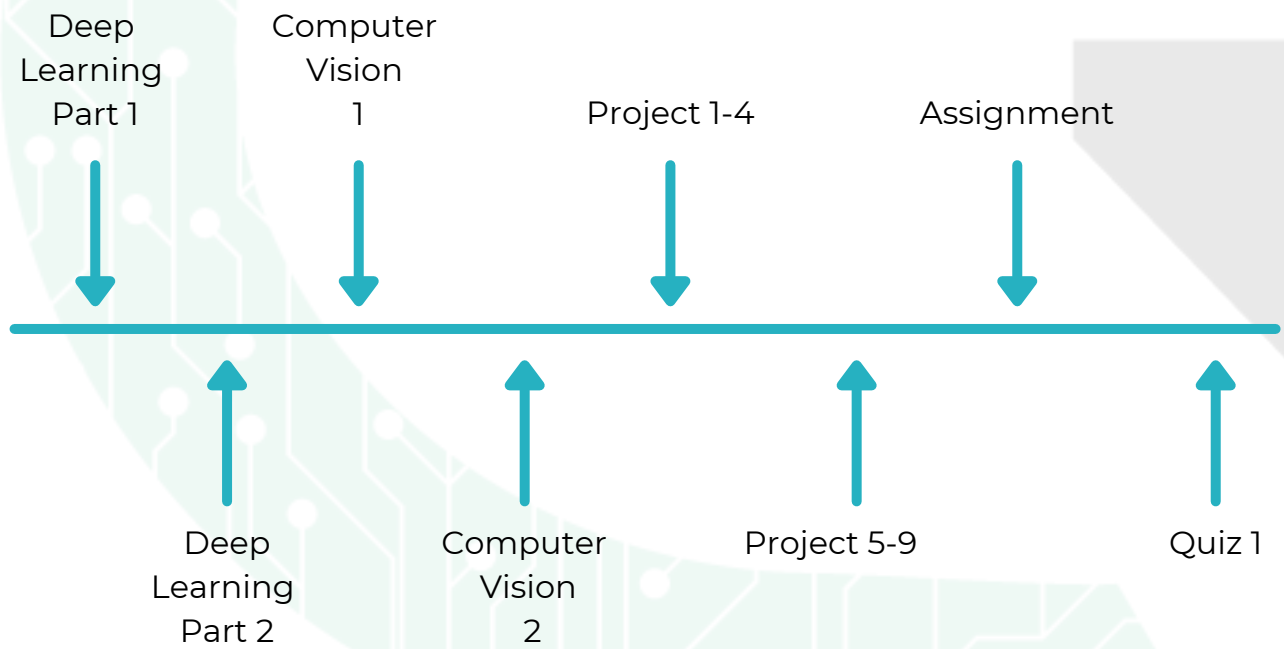
Data is the new Oil. This statement shows how every modern IT system is driven by capturing, storing, and analyzing data for various needs. Be it about making decision for business, forecasting weather, studying protein structures in biology or designing a marketing campaign.
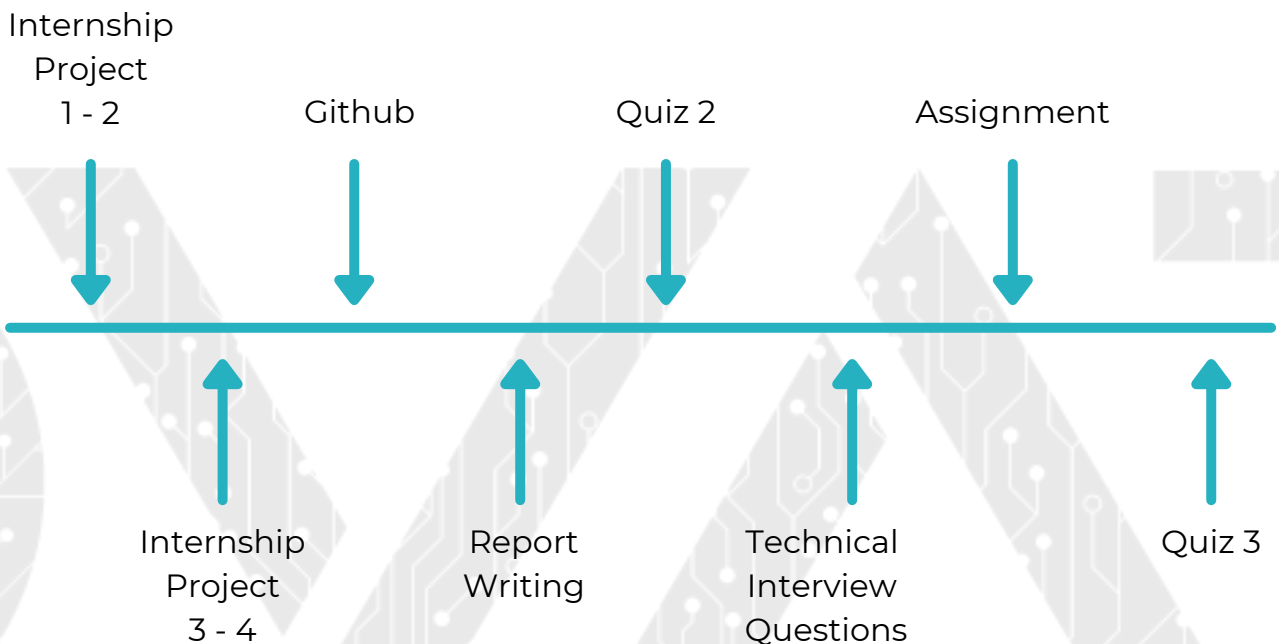
Perks:-

1. TRAINING COMPLETION CERTIFICATE
2. INTERNSHIP COMPLETION CERTIFICATE
3. LETTER OF RECOMMENDATION
4. AWARDS

DEEP LEARNING WITH COMPUTER VISION
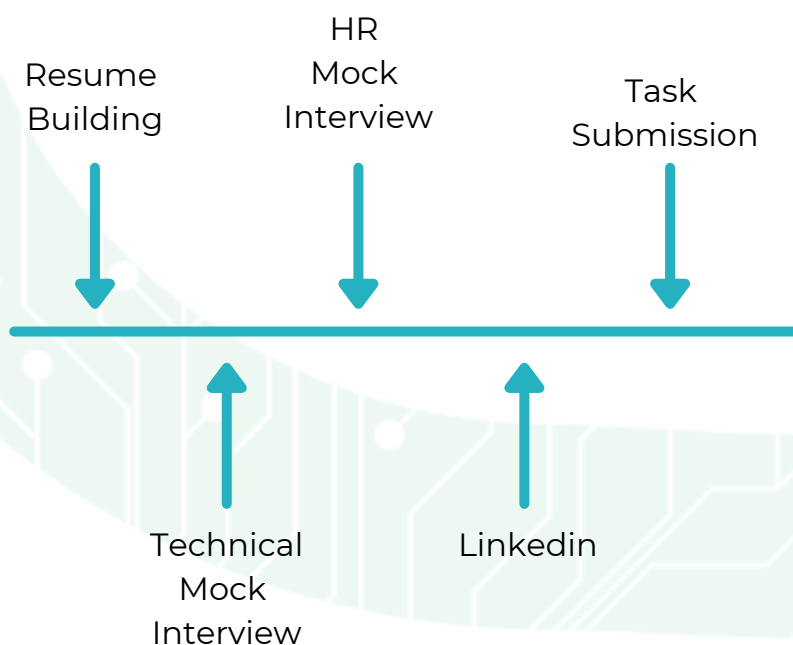
TRAINING PERIOD:-

Deep Learning Part 1	Computer Vision 1	Project 1-4	Assignment
↓	↓	↓	↓

Deep Learning Part 2	Computer Vision 2	Project 5-9	Quiz 1
↑	↑	↑	↑

INTERNSHIP PERIOD 1:-

Internship Project 1 - 2	Github	Quiz 2	Assignment
↓	↓	↓	↓

Internship Project 3 - 4	Report Writing	Technical Interview Questions	Quiz 3
↑	↑	↑	↑

TCR INNOVATION

DEEP LEARNING WITH COMPUTER VISION

FLOW OF INTERNSHIP PROGRAM

INTERNSHIP PERIOD 2:-

Resume
Building

HR
Mock
Interview

Task
Submission

Technical
Mock
Interview

Linkedin

PYTHON

- Introduction
  - Introduction to python
  - History of python
  - Installing and using python
- Basic programs in python
  - Get started with "Hello world" program.
  - Addition and multiplication in python
- Variables
  - How to work with variables
  - Datatypes of variables
  - Type conversion of variables
  - Writing expressions using variables
- Operators
  - Arithmetic operators
  - Comparison operators
  - Logical operators
  - Bitwise operators
  - Assignment operators
  - Identity operators
  - Membership operators

PYTHON

- Loops and Iteration
  - For loops
  - While loops
  - Various programs using loops
- Functions
  - User defined functions and predefined functions
  - Types of arguments
  - Input and output
  - Recursion
- Strings
  - Introduction to strings
  - String methods
  - Working with strings
- Lists
  - What is a list and how does it differ from array
  - List methods
  - Programs using lists
- Tuple
  - Introduction to tuple
  - Working with tuples
  - Methods of tuples
- Dictionary
  - Keys and values
  - Working with dictionaries

Probability

- Probability Basic Probability
- Random experiments
- conditional Probability
- Independent Events
- Bayes theorem,
- Permutation, combination
- Random variable,
- Discrete/Continous RV, PDF, PMF, CDF
- Joint Probability Distribution
- Conversion techniques
- EV, variance, SD
- Covariance, Correlation,
- Chebyshev Inequality, Law of Large number
- Central limit Theorem,
- Percent & Quantiles, Moments
- Skewness & Kurtosis
- Gaussian, Binomial
- Standard Normal
- Distribution
- Poisson,
- Multinomial,
- Hypergeometric,
- Uniform, Exponential Distribution

Statistics

- [Mean, median, mode](Sample/population)
- Expected values
- varience
- standard deviation
- Sampling distribution
- Frequency distribution
- Estimation Theory
- confidence interval
- Maximum Likelihood Estimation
- Hypothesis Testing - Chi Square
- Student's T
- F Distribution
- Z test
- Hypothesis Testing - Type-I, Type- II
- p Values
- Relationship between NULL & Alternative
- Least Sequare Methods - Numerical

Data Pre-Processing

- Data Cleaning - Handling Missing Values(Data Imputation)
- Dealing with Noisy data(Binning Technique)
- Advance Data cleaning - Will be referred while Regression
- clustering topics
- Data Transformation Techniques- Normalization (minmax, log transform, z-score transform etc.)
- Attribute Selection
- Discretization
- Concept Hierarchy Generation
- Data Reduction: Data Cube Aggregation
- Numerosity Reduction
- Dimentionality Reduction

Neural Networks Using Tensorflow and Keras

- Basic Mathematics - DL
- Introduction to Perceptron & History of Neural networks
- Activation functions
  a. Sigmoid
  b. Relu
  c. Softmax
  d. Leaky Relu
  e. Tanh
  f. Exponential Linear Units (ELU)
  g. Swish
- Gradient Descent
- Learning Rate and tuning
- Optimization functions
- Introduction to Tensorflow
- Introduction to keras, theano, pytorch - handson
- Back propagation and chain rule
- Fully connected layer
- Cross entropy
- Weight Initialization

Working with images & CNN Building Blocks

- Regularization
- coding perceptron
- Q&A
- Working with Images_Introduction
- Working with Images - Digitization,
- Sampling, and Quantization
- Working with images - Filtering - OpenCV
- Hands-on Python Demo: Working with images
- Introduction to Convolutions
- 2D convolutions for Images
- Convolution - Backward - handson
- Transposed Convolution and Fully Connected Layer as a Convolution - handson
- Pooling: Max Pooling and Other pooling options - practical

TCR INNOVATION

CNN Architectures and Transfer Learning

- CNN Architectures and LeNet Case Study
- Case Study: AlexNet
- Case Study: ZFNet and VGGNet
- Case Study: GoogleNet
- Case Study: ResNet
- GPU vs CPU
- Transfer Learning Principles and Practice
- Hands-on Keras Demo: SVHN Transfer learning from MN dataset
- Transfer learning Visualization (run package, occlusion experiment)
- Hands-on demo -T-SNE
- Hands -on CNN nets
- Hands-On OCR, Face Recognition, Object Detection,
- Pose Estimation,
- 3D estimations

CNN's at Work - Semantic Segmentation

- CNNs at Work - Semantic Segmentation
- Semantic Segmentation process
- U-Net Architecture for Semantic Segmentation
- Hands-on demo - Semantic Segmentation using U-Net
- Other variants of Convolutions
- Inception and MobileNet models

Object Detection

- CNN's at Work - Object Detection with region proposals
- CNN's at Work - Object Detection with Yolo and SSD

CNN's at work- Siamese Network for Metric Learning

- Siamese Network as metric learning
- How to train a Neural Network in Siamese way
- Hands-on demo - Siamese Network

TCR
INNOVATION

ADDITIONAL SKILLS
YOU WILL LEARN

- **Linkedin**

- **Github**

- **Improved communication skills**

- **Interview cracking**

- **Resume building**

- **Leadership skills**

TCR
INNOVATION

STUDENTS FROM HERE ARE WORKING IN FOLLOWING COMPANIES

CERTIFICATE

Training Completion Certificate

Internship Certificate

Letter of recommendation

Appreciation certificate

Internship Program Registration

Duration of the internship program: 2 Months

How to Register & Fees:

Step 1: Attend the free orientation to get the detailed information about our internship program.

Step 2: Final Registration Form will be provided and fees will be disclosed in the orientation itself.