

# Hrishikesh Singh

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LinkedIn

GitHub

Website

## Experience

### Indian Institute of Technology, Roorkee

Feb '24 – Ongoing

**Machine Learning Researcher** - AMSC | Deep Learning, Python

Hybrid

- Working on *Machine learning in Computer vision & Image processing*, and explainability of black box models using *Explainable AI (XAI)* methods in collaboration with Dr. Millie Pant (HoD-AMSC).

### Coding Ninjas

May '23 – Sept '23

Technical Consultant | Python, Java

Gurugram

- Migrated the existing monolithic Java RestAPIs into microservices based APIs using FastAPI and NoSQL(*MongoDB*).
- Designed *Introduction to Java, Data Structure and Algorithms* and *Design Patterns Course* for career camp program undertaken by 3000+ engineers and final year students.

### Independent Contract

Aug '20 – Dec '21

Software Engineer | Java, Springboot

Remote

- Worked on interesting engineering problems based on SDLC while capitalizing on 7+ robust technical toolkit, including Python, Deep Learning, FastAPI, Django, Springboot, Git, AWS, Cloud Deployment, and MySQL, to create and deliver top-tier solutions, making significant contributions to few clients projects.

### Google Summer of Code

May '18 – Aug '18

Software Engineering Intern | Java

Remote

- Mentor : *Dr Mangus Knuth*, HTD DBpedia Association
- Worked on an enhanced *Table of Content Extractor* for *WikiMedia Datadump* generated by conversion of conventional Semantic data (XML/JSON) format to *Resource Description Format* (RDF) following *OWL standards*.
- Created DBpedia Ontology based *Languange resources( NLP Interchange format)* via URIs, IRIs extraction from unstructured Wikipages. Improved the extracted resources for *Linked Data Access* and *SPARQL Queries*

### Indian Institute of Technology, Delhi

May '17 – Jan '18

Machine Learning Research Intern | Python

New Delhi

- Research Advisor : *Dr K. K. Biswas*
- Developed a Question answering system from FAQs using Word-embeddings and *seq2seq* AM based on *LSTM Model*
- Used *Stanford Question Answering Dataset(SQuAD 1.1)* derived from Wikipedia Articles

### Pacific Dynamics

Nov '17 – Jan '18

Software Engineering Intern | Python

New Delhi

- Worked with Simulation team to process the Stress Test Data a.k.a. Fatigue Test of full scale turbine blades.
- Designed a Brownian-motion and *Lattice-Boltzmann* Simulator for airflow drag parameters which reduced error-prone manual calculations.

## Education

### Jaypee Institute of Information Technology

Bachelor of Technology in Computer Science (Dean's List, **SGPA 10/10**)

New Delhi

## Publication

### Empirical Analysis of Bitcoin Market Volatility Using Supervised Learning Approach

IEEE

- Conference Paper on Financial Econometrics exploring the volatility in Bitcoin prices as measured using Regression.

## Projects



### Hangman



| Python, Deep Learning

- Developed an RNN-based model for Hangman game prediction, utilizing a multi-label classification approach trained on a corpus of 227k English words, achieving high accuracy in predicting missing characters.
- Implemented an encoder-decoder architecture with a 2-layer, 512 hidden unit GRU model, trained using Adam optimizer and Binary Cross Entropy Loss, with improved performance in predicting missing characters in the game.
- Analyzed performance, revealing improved accuracy with shorter word lengths, showcasing model efficacy.

### Gitlet



| Java, SQL

- Developed a version control system backed by a tree-based data structure that employs SHA-1 encryption.
- Used Java standard library to implement init, add, commit, log, branch, and checkout functions
- Serialized data in .gitjet file to store old versions of files and commit tree using Serializable interface
- Capable of handling multiple file additions and removals with constant run-time efficiency.

## Technical Skills

**Languages:** Python, Java, C++, SQL

**Machine Learning:** Computer Vision, NLP, Feature Engineering, TensorFlow, Keras, Pandas, NumPy, OpenCV.

**Frameworks & Technologies:** FastAPI, Django, NoSQL, Docker, AWS, Spring Boot, Jenkins, PyTest, JUnit, Linux,

**Developer Tools & Interests:** Git, Atlassian (Bitbucket, Jira), IntelliJ, Distributed Systems, Algorithms, Data Structures

## Extracurricular

- Gold Medal in National Mathematics Olympiad organized by CBSE
- Gold Medal in Delineation Competiton (District Level)