

# Tuhin Subhra De

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Availability: May 2026 - September 2026

## EDUCATION

<b>Khoury College of Computer Sciences, Northeastern University</b> Master of Science in Artificial Intelligence   GPA: 4.0/4.0 • Relevant Courses: Algorithms, Foundations of AI	Boston, MA Sep 2025 - Dec 2027 (expected)
<b>Indian Institute of Technology Kharagpur (IIT)</b> Bachelors and Masters of Technology in Civil Engineering   GPA: 8.75/10 • Relevant Courses: Programming and Data Structures, Machine Learning, Deep Learning, Big Data Processing	West Bengal, India Jul 2019 - Apr 2024

## WORK EXPERIENCE

<b>ICICI Bank Pvt. Ltd (Technology Group)</b> Software Development Manager-1 • Optimized credit card and loan application platforms using machine learning by leveraging prior fraud estimates. • Enhanced the credit sales by <b>4%</b> and reduced the credit default rate by <b>6.8%</b> in the Q4 of financial year 2024. • Managed teams and technically resolved production issues within stipulated time minimizing performance breaks. • Collaborated with product teams to implement business requirements by integrating different services via API.	Mumbai, India Jul 2024 - May 2025
<b>Udaan.com (Hiveloop Technologies)</b> Data Science Intern • Extracted important model input features from raw data using SQL, driven by insights from business teams. • Devised a method by stacking the XGBoost Classifier and Poisson-Gamma distribution to recommend products. • Increased the Bi-Weekly sale by <b>13.4%</b> using the proposed method in real-time E-commerce. (Publication no. 3)	Bangalore, India May 2023 - Jul 2023
<b>Indian Institute of Management Mumbai</b> Machine Learning Research Intern (NITIE Research Lab) • Improved profit rate by <b>23%</b> in a cargo booking scenario using dynamic programming and deep learning. • Estimated the minimum cost of operation using Neural Networks trained on data from Vehicle Routing Problems. • Used dynamic programming to find the optimal acceptance of cargo requests using results from the above model.	Mumbai, India Sep 2021 - Dec 2021

## PUBLICATIONS

1. *Preprint*: Improving Conditional VAE with approximation using Normalizing Flows. **Tuhin Subhra De** (2025) <https://arxiv.org/abs/2511.08946v2>
2. A Non-Linear LASSO and Explainable LSTM approach for Estimating Tail Risk interconnectedness. **Tuhin Subhra De**, Madheti Kartikeya, Sujoy Bhattacharya (2024). Applied Economics Journal.
3. A Machine learning and Empirical Bayesian approach for predictive buying in B2B e-commerce. **Tuhin Subhra De**, Pranjal Singh, Alok Patel (2024). International Conference on Machine Learning and Soft Computing.

## PROJECTS

<b>Improving Conditional VAE with approximation using Normalizing Flows</b> Course Project for Foundations of AI, Northeastern University • Implemented a conditional variational autoencoder to generate faces with different features using Celeb-A dataset. • Parametrized the variance of the decoder and estimated the conditional prior using Non-Volume Preserving Flows. • Obtained <b>5%</b> better FID score and <b>8%</b> more log likelihood than the existing models using the new method.	Sep 2025 - Present
<b>Estimating risk interconnectedness in global banks using deep learning</b> Bachelor's Thesis Project, IIT Kharagpur (Publication no. 2) • Analyzed financial risks within global large banks by identifying the features steering the stock price predictions. • Improved the model performance by <b>4x</b> than the existing literature using residual networks and LSTM models • Proposed a novel and more consistent gradient based metric for quantifying the risk interconnectedness.	Jun 2023 - Jan 2024

## ACHIEVEMENTS

- JEE Advanced 2019:** Secured **5542** national rank in Joint Entrance Examination (JEE) among **22,000** candidates.  
**INMO 2017:** Selected for Indian National Mathematics Olympiad (pre-stage of IMO) among **14,000** national students.

## TECHNICAL SKILLS

**Languages/Frameworks:** C, C++ (STL), Python, JavaScript, HTML/CSS, SQL, Git

**ML Libraries:** PyTorch, TensorFlow, Scikit Learn, PySpark, OpenCV, Seaborn

**ML Architectures :** CNNs (Computer Vision), RNNs (NLP), LLMs, Transformers, Diffusion models, GANs.