

# ANSHUMAN SINHA

CONTACT INFORMATION	CODA S1349B Georgia Institute of Technology Atlanta, GA-30332, US.	Phone: +1(470) 929-3962 Email: anshs@gatech.edu website: <a href="#">github</a>
EDUCATION	<b>Georgia Institute of Technology, Atlanta</b> MS CSE, College of Computing	<i>Jul'22-May'24</i>
	<b>Indian Institute of Technology Kanpur, India</b> BT-MT Dual Degree (Thesis in Computations ), Materials Science and Engineering CGPA: 9.0/10 (MT); 8.0/10 (BT) (Proficiency Gold medal and Thesis Gold medal 2nd place)	<i>Jul'15-May'20</i>
	<b>St. Michael's High School, Patna, Bihar, India</b> <i>AISSCE, CBSE Board</i> Grade 12: Percentage Score: <b>94.6%</b> Grade 10: Percentage Score: <b>95.0%</b> , CGPA: <b>10/10</b>	<i>May'14</i> <i>May'12</i>
ACHIEVEMENTS	<ul style="list-style-type: none"><li>• 'Institute Proficiency medal' and 'Gold medal 2020'(2nd) at IIT Kanpur convocations.</li><li>• Awarded <b>Full tuition waiver</b> and <b>GTA</b> position at Georgia Tech for MS 2022-24.</li><li>• International <b>Rank of 103</b> in the <b>International Mathematics Olympiad 2012</b>.</li><li>• Ranked among the top <b>0.2%</b> of <b>1.5 million</b> candidates in the Joint Entrance Examination for admission into IITs (IIT-JEE 2015).</li></ul>	
RESEARCH INTEREST	<ul style="list-style-type: none"><li>• Deep Learning architecture development, Graph based Machine Learning, Network modelling, Computational data science, Natural language processing and Sentiment analysis.</li></ul>	
WORK EXPERIENCE	<u><b>Machine learning and CSE:</b></u>  <b>Research project: Deep learning, CSE Georgia Tech.</b> <b>Advisor: Prof. Spencer Bryngelson</b> <i>Jul'22-Present</i> <ul style="list-style-type: none"><li>• Developing Deep learning architecture for mathematical operator estimations, in order to compute highly-oscillatory integrals at sub-grid scale for Phase-averaged bubbly flow model.</li><li>• The network architecture is build with the help of scientific machine learning library called 'deepxde' with Tensorflow backend. <a href="#">link</a> (<b>Paper: In draft</b>)</li></ul> <b>ML Project: Inter regional relations between Disease outbreak and search trends</b> <ul style="list-style-type: none"><li>• Prediction of disease outbreak through ML models (like LSTM and GRU) with the help of top k-search trends. Top k most correlated time-series calculated in embedding space.</li><li>• Estimation of virality on population graph using meta-data based on contacts with the help of optimised infection transfer variables <math>\beta</math> and <math>\gamma</math> of SIR-Network (graph) model. <a href="#">link</a></li></ul> <b>ML Research: Graph transformer network, Georgia Tech.</b> <i>May'21-Jul'22</i> <ul style="list-style-type: none"><li>• Developed a Graph transformer network (GTN) for heterogeneous graphs used in representation learning tasks such as node classification and link prediction on TensorFlow.</li><li>• It is an adaptation to the original Pytorch model with the help of Tensorflow functional API.</li><li>• The work involves modelling of Graph Transformer Networks (GTNs) that are capable of generating new graph structures, which involves identifying useful connections between un-connected nodes on the original graph, while learning effective node representation on the new graphs in an end-to-end fashion. <a href="#">link</a></li></ul>	
PUBLICATION	<b>Computational study of non isothermal slag eye formation and its effects</b> <i>Anshuman Sinha, Amarendra Singh.(MMTB), 2021, (Submitted)</i> <a href="#">link: Publication1</a> <ul style="list-style-type: none"><li>• A computational study of the slag-eye opening with the help of Discrete Phase modelling (DPM) coupled with random walk model for including the particle level turbulence.</li></ul> <b>Optimisation of a multi surrogate model system with the help of Genetic algorithm.</b> <i>Anshuman Sinha, A K Singh. (Draft only, paper under peer-review)</i> <a href="#">link: Publication 2</a> <ul style="list-style-type: none"><li>• Optimisation of the ladle furnace time with the help of a CFD based Deep learning surrogate models. Ladle process variables are optimised with the help of this low order DL model.</li></ul>	
RELEVANT COURSES	<b>Courses:</b> Machine learning, Deep-learning, Computational epidemiology, Computational data analysis, Probability & Statistics, Non-linear Optimisation, Data structures and algorithm.	