



Dhruvin Dankhara

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EDUCATION

University of Guelph, Canada Master of Applied Science in Engineering GPA: 3.9 (92.7 %) Courses: Intro to Machine Learning, Software Architecture: AI, Intro to IoT, Finite Element Methods, Computer programming for MEng., Finance for Engineers	Jan 2022 - May 2023
Gujarat Technological University, India Bachelor of Mechanical Engineering CGPA: 8.43/10	Jun 2015 - Jun 2018
Gujarat Technological University, India Diploma in Mechanical Engineering CGPA: 8.33/10	Jun 2012 - Jun 2015

SKILLS

- **Programming:** Python, Java, MATLAB, C++, Linux, Spark
- **Machine Learning:** TensorFlow, Keras, PyTorch, JAX, Scikit-Learn, OpenCV, RAY, MLFlow, DeepXDE
- **Data Analysis:** MySQL, Numpy, Pandas, Matplotlib, Seaborn, Power BI



ACADEMIC PROJECTS

Data Driven Reduced Order Model (Data Reduction) (Image Processing) • Developed a Reduced-Order model using Dynamic Mode Decomposition for transient heat transfer in arbitrary domain • Data extracted from infrared video captured by FLIR thermal imaging camera using OpenCV • Reduced the captured data into 3 tiny matrices using Dynamic Mode Decomposition • Final model is able to recreate the data and extrapolate accurately in the future	Nov 2022 - Mar 2023
Physics Informed PINNs and DeepONet (Deep Learning) (Operator Learning) • Developed and trained Physics Informed Neural Networks (PINN) and Deep Operator Network (DeepONet) to learn operator mapping between partial differential equations and their solution • Implemented TensorFlow models with custom forward, backward and training methods • Trained models are able to solve problems in solid mechanics, heat transfer and fluid dynamics using unseen data	Aug 2022 - Mar 2023
A review of NLP methods using Sentiment Analysis of Tweets (NLP)  • In depth review of Natural Language Processing techniques for Sentiment classification of sentiment-140 data set • Implemented, dictionary based and bag of words representation based sentiment classifiers and compared performance	Jan 2022 - May 2022
IoT for Equipment Health Management in Smart Factory: A Review  • Review of available Equipment Health Management (EHM) methods from the Internet of Things Perspective • Study provides in-depth review of available sensors, communication techniques, data processing techniques, and deep learning methods for the purpose of EHM in industries	May 2022 - Sep 2022

WORK EXPERIENCE

Research Assistant, University of Guelph, Canada • Use of multidisciplinary skills in computer engineering, mechanical engineering, mathematics and machine learning to solve unique problems in engineering • Development of data driven algorithms and machine learning models for engineering simulations	May 2022 - Present
Teaching Assistant, University of Guelph, Canada • Teaching assistant for the course Design and Engineering 2, mentoring students to design a 3D printed Kinder toy • Primary responsibilities include monitoring progress, giving feedback, conducting labs and seminars, student consultation, orientation and training.	May 2022 - Present
Design Engineer, Larsen and Toubro, India • FE analysis, machine design, and detailed engineering of coal pulverizer used in supercritical coal power plants and Stress Analysis of reactor pressure vessels used in chemical and petroleum industries • As Digital Enabler, responsible for the implementation of digital technologies to improve and automate design processes and prepare tools for project tracking • Notable contributions include welding & pipe bending process parameters optimization using machine learning and project tracking platform using Power BI	Aug 2018 - Dec-2021

CERTIFICATIONS

- Deep Neural Networks with Pytorch - Coursera 
- Finite Element Methods for Problems in Physics - Coursera 
- Lean Six Sigma White Belt - Binghamton University 