Budhachandra Singh Yumkhaibam

bxy4155 | YBCS | Website | budhachandra

Research Interest

Machine Learning for Computational Neuroscience . Machine Learning for Mental Health · Multi-Omics Integration
Genomic Imputation . Adversarial Robustness · Interpretable, Explainable AI in Healthcare

Education

University Of Texas at Arlington 2024–present
M.S. Computer Science and Technology

Sharda University (Greater Noida) 2017–2021
B.Tech Computer Science and Technology

Research and Professional Experience

UT Arlington (Arlington, Tx) May 2025 - Present

Graduate Research Assistant *python, numpy, pytorch, matplotlib, pandas*

- Trained medical llm using knowledge distillation, achieving 60 % size reduction while maintaining comparable accuracy.
- Developing new methodologies for genomic imputation (ongoing) which is more robust to adversarial attacks.
- Performing statistical analysis on preterm birth for a small controlled cohort (ongoing)

Fibonalabs (Bangalore, Remote) May 2022 - Feb. 2023

Software Developer *React, redux, google map api, Node.js*

- Optimized React web application, improving load times by 35%.
- Designed and integrated QR code functionality, enhancing user interaction on mobile platforms.
- Core developer and maintainer of all forms on our website.
- Mentored new team members, expanding the frontend team's capacity and efficiency.

Jellyfish Technologies (Noida, Remote) Feb. 2021 - Mar. 2022

Software Developer *Ionic, Angular, TypeScript, Sails.js, Sqlite*

- Designed and implemented a complete notification system for enterprise-level applications.
- Implemented offline capabilities, ensuring smooth performance during low connectivity.
- Improved the stability and performance of the platform by rewriting the core architecture of the application.
- Enhanced the UI/UX with custom animations and improved system stability.

Volunteering (Open Source Project)

Oppia Mar 2020 – Jan 2023

Data and Stability team (backend)

- Contributed by resolving more than 20+ issues. **Link**
- Wrote Apache beam jobs to maintain and manage inconsistent data and perform large scale data transformations.
- Removed LogicProof Interaction(deprecated); a very tightly integrated component.
- Helped in python2 to python3 migrations

Research Projects

Variational Autoencoder (VAE) for Breast Cancer Slide Compression

- Reproduced the methodology from the paper "Clinically Relevant Latent Space Embedding of Cancer Histopathology Slides through Variational Autoencoder Based Image Compression" (Mohammad Sadegh Nasr et al., 2023).
- Developed and deployed a deep learning pipeline for histopathology slide compression using a variational autoencoder.
- Conducted result analysis, validating clinical relevance and effectiveness of the latent space representations.

QuadTree study with predator, prey dynamic simulation game

- Explored game programming concepts like game loop, game state, collision detection, movement logic, OOP.
- Learned about quad trees and how they can dramatically improve collision detection performance.
- Wrote a blog to explain my project. Play it **Here**

Relevant Courses

CSE 5365 Computer Graphics
CSE 5373 GPU programming
CSE 5360 Artificial Intelligence
CSE 5370 Bioinformatics

CSE 6367 Computer Vision
MATH 5319 Probability Theory
Practical Deep Learning for Coders (online).

Publications

M.S. Thesis: Multi-Modal Modeling of Preterm Birth Risk in an Underrepresented Black/African-Ancestry Cohort
In preparation: Stable Pipeline for Multi Modal analysis on preterm birth for small datasets