KARTIK CHINCHOLIKAR

I'm a Deep Learner who will help you take design decisions to make the most out of domain knowledge, while allowing the data to do the rest. I also enjoy simplifying complex concepts into short videos.

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SKILLS:

- Ability to synthesize and communicate complex technical concepts clearly and concisely.
- Strong fundamentals in Linear Algebra, Probability and Calculus.
- Professional Googler and Internet explorer.

TOOLS:

Machine Learning Stack:
numpy, matplotlib, tensorflow, pytorch, pytorch-geometric, tensorflow, scikit-learn, pandas, AWS Studiolab

Adobe Creative Suite & More:
Mood boarding, Photoshop, Premiere Pro, Audacity, Canva, Prompt Designing for Generative AI

Other Technical Tools:
MATLAB, R, AutoCAD, SOLIDWORKS, Ansys, Java, Android Studio

Productivity:
Zotero, Notion, Obsedian, Discord, Slack

EDUCATION:

BE Mechanical Engineering
Savitribai Phule Pune University, India
First Class [2012-2016]

WORK EXPERIENCE

Equitech Futures [2022-2023]

- **Research Associate**

We highlighted the risk factors which make breast cancer patients undergoing chemotherapy more prone to nausea and vomiting (CINV).
Despite a small dataset size, the risk factors found corroborated with existing literature.
I made a novel contribution to the *Inclusion Criteria* via a data cleaning procedure which makes better use of domain knowledge, enabling fine tuned treatment.
Work done in collaboration with Oncology Department at the Kenyatta National Hospital, under the guidance of Bhasi Nair and Abhilash Mishra.

- **Teaching Assistant**

I assisted students with their assignments on:
Python Foundations, Bayesian Modelling, and Data Visualization.
I also had many insightful discussions on the *feasibility* of AI applications to various domains.

Machine Learning Storyteller [2020 - Present]

- **A study of Group Equivariant Neural Networks**

Visualized a forward pass through a neural network architecture which has been *designed to respect the symmetries* of the ground truth data-labeling function. Incorporating such prior knowledge to design data-efficient models is crucial in domains where data collection and labeling is expensive.
The video was acknowledged by leading researchers Taco Cohen (Qualcomm) and Erik Bekkers (University of Amsterdam).

- **Simulations in Statistical Learning Theory**

Ran toy simulations to understand the need to use domain knowledge to do feature engineering and also to choose a hypothesis class *which is not too flexible, but flexible enough.*
Use of animation enabled easy exploration of topics such as the i.i.d assumption, PAC Learning, Feasibility of Learning, bias-complexity trade off, No-free-lunch theorem and the VC Dimension.
The resulting video was acknowledged by Shai Ben David, Professor of Theoretical Computer Science at University of Waterloo.

- **A Study of the Manifold Hypothesis**

High-dimensional data of interest lives in an unknown lower-dimensional manifold embedded in ambient space. This is because real life datasets actually contain a tremendous amount of structure.
I compiled everything which excited me about this topic in a video.
The video featured twice on popular YouTube channel Machine Learning Street Talk.

Badminton School [2018-2020]

- **Sports Analytics**

Made an annotation tool to manually collect the data of the badminton player to be analyzed.
Derived insights from sequential data to find common "Patterns of Play". These patterns can be exploited during the crucial moments of a match.

- **Advertising and Content Creation**

Started a Youtube Channel teaching the basics of Badminton in Hindi, garnering 34k Subscribers.

SportShack [2016-2017]

- **Android Development**

Built an Android app which enabled runners to share screenshots with friends.

- **Gamification**

Designed a rating system to motivate runners to be consistent.