# Kartik Chincholikar

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## Summary

hey! I'm Kartik. I will help you make the most out of data and domain knowledge.
I have 1 year of experience in data science and machine learning and 5 years of experience in educational video-making

I'm skilled in :
- Google Cloud Platform (GCP)
- exploratory data analysis (EDA)
- data cleaning and massaging
- feature engineering and feature selection
- model selection, evaluation and maintenance
- Bayesian modelling
- statistical learning theory
- Deep learning: equivariant neural networks, graph neural networks, computer vision, natural language
- evaluating the feasibility of deep learning solutions.
- simplifying and communicating technical concepts using short videos
- Adobe Creative Suite: Photoshop, Premiere Pro

Career highlights:
- My educational videos on AI/ML have been acknowledged by professors and leading researchers at Qualcomm AI Research, the University of Waterloo, the University of Amsterdam, the University of Chicago and the University of Oxford.
- I taught the basics of badminton on YouTube, reaching 2.5 million viewers and garnering 34,000 subscribers at Badminton School, a sports analytics startup.

## Experience

### Associate Researcher

Equitech Futures

Mar 2022 - Present (1 year 9 months)

We identified the factors that increase the risk of chemotherapy-induced nausea and vomiting (CINV) in breast cancer patients. Despite a small dataset size, the risk factors found corroborated with existing literature.

I made novel contributions to the Inclusion Criteria and the Data Cleaning procedure, making better use of domain knowledge to allow fine-tuned treatment.

Work done in collaboration with the Oncology Department at the Kenyatta National Hospital, under the guidance of Bhasi Nair and Abhilash Mishra.

### Machine Learning Educator

Youtube

Jan 2020 - Present (3 years 11 months)

- A Visual Introduction to Group Equivariant Neural Networks and Geometric Deep Learning:
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 labelling are expensive.
This video was acknowledged by leading researchers Taco Cohen (Qualcomm AI Research), Gabriele Cesa (Qualcomm AI Research), and Erik Bekkers (University of Amsterdam).
LINK: https://www.youtube.com/watch?v=p8ZADylZwyE

- 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.
LINK: https://www.youtube.com/watch?v=BePQBWPnYuE

- A Visual Introduction to 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. The use of animation enabled easy exploration of topics such as the PAC Learning, Feasibility of Learning, bias-complexity trade-off, No-free-lunch theorem and the VC Dimension.
This video was acknowledged by Shai Ben David, Professor of Theoretical Computer Science at the University of Waterloo.
LINK: https://www.youtube.com/watch?v=lsYPC0MuLJA

### Teaching Assistant
Equitech Futures
Mar 2022 - Nov 2022 (9 months)
- Assisted students with their assignments on Python Foundations, Data Cleaning, Data Visualization, and Bayesian Modelling.
- Had insightful discussions on evaluating the feasibility of AI solutions for various specific domains.

### Sports Analyst and Coach
Badminton School
Sep 2017 - Jan 2021 (3 years 5 months)
- Built 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. Used modelling techniques such as Markov Chains, Beam Search, RNNs and GRUs.
- Taught the basics of Badminton on YouTube, reaching 2.5 million viewers and garnering 34,000 Subscribers: https://www.youtube.com/@BadmintonSchoolHINDI
- Coached beginner and intermediate badminton players of all ages

### Android Developer
Sport Shack
Mar 2016 - Dec 2017 (1 year 10 months)
- Built an Android app using GCP and Firebase, which enabled runners to share post-run photos and screenshots with friends.

- Implemented a gamification system to motivate runners to train consistently.

## Education

**Maharashtra Institute of Technology**
Bachelor of Engineering - BE, Mechanical Engineering
2012 - 2016

**Savitribai Phule Pune University**
Bachelor of Engineering - BE, Mechanical Engineering
2012 - 2016

## Skills

NumPy • Matplotlib • Pandas (Software) • YAML • Scikit-Learn • PyTorch • Statistics • Google Cloud Platform (GCP) • Presentation Skills • Teamwork