How do develop **good** research skills

Presentation of one of his supervisors

Differences between a nomal project and a research project

**What is Research and Why?**

Pushing the boundaries of the knowledge/resolve a problem

Pushing the knowledge gap

Purpose-Improve the world

Ex:- covid vaccine

Tax payer money is used for research, should be a service to the society. Not just researchers become smarter and smarter. Do it without the dissemination through academinc publications

**Research vs Project?**

Project – Product is outcome, already know the outcome

Research – knowledge is a outcome, don’t know the final results(positive or negative , outcome is uncertain)

Ex:- there are unsuccessful stoies as well as successes in covid vaccine

Failures can also be a good research. Future researches can avoid that method in future researches for the same problem. It fills the research gaps. Great research articles have conclusions and future work, we usually mention the limitations and in which circumstances this is not working.

**Problem Identification**

Background, motivation on some area

Found From literature, similar studies

Find research gaps you an address

People usually stick to specific area. Can exploit area a lot. Can get updated.

Application researches

Ex. Apply some theory to a practical problem. Ex : NN to predict stock market

Finding a fresh area is very useful Everyone working in that area have to cite the same paper because it is among the first papers.

Problems can come from industry, mostly application researches

Ex:- competitions of google, Netflix- improve their recommendation system by 10% they will award 1 mn. One person won.

Introduction

Problem Definition

Related Work(literature)

Design/Architecture

Experimenst

Discussion and Results Analysis

Conclusions

**What happens when someone else publish the same research I am doing in the middle of my work?**

Really important to work in a particular area and know the other people working in area so you know what others do

Different ways to still publish

Identify the limitations in their work and address

Run in more datasets

**Important factors to consider when doing a research**

**Citing**

Reference Management

Don’t do academic crimes. Show someone else’s work as yours without properly citing

**Citation Management Systems Ex; Mendeley(free and open source)**

**Zotero**

What to cite

Cite what is important

Sight what you cite. Read the articles you cite, atleast abstract

Cite software and packages

Citation(“packages”

**Searching**

**Scripting**

**Important for reproducibility. Really helpful for other researches. All data edits scripted**

**Now it is mandatory for some jourals,conferences to share the github repo**

**Someone should be able to reproduce your thesis without having to guess what softwares, versions used**

**Writing**

