

AI IN MEDICINE & BIOMEDICAL SCIENCES

Vedant Parnaik

MS, Robotics and Applied Sciences *

UB **University at Buffalo** The State University of New York



A LITTLE ABOUT ME

- Robocon Team Rudra, 2018-19.
- MS in Robotics and Applied Sciences.
- Worked as a RA for Dr. Mingchen Gao on Parkinsons' Early Prediction.
- Currently working on Multimodal-AI in AIBS.



You

If I give you my medical reports, tell me which medicine I should take?

< 2 / 2 >

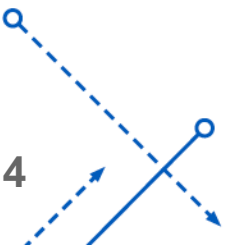


ChatGPT

I'm not able to interpret medical reports or recommend medications. It's crucial to discuss your medical reports with a qualified healthcare provider who can provide appropriate recommendations based on a thorough assessment of your health needs. They are equipped to give you the safest and most effective advice.

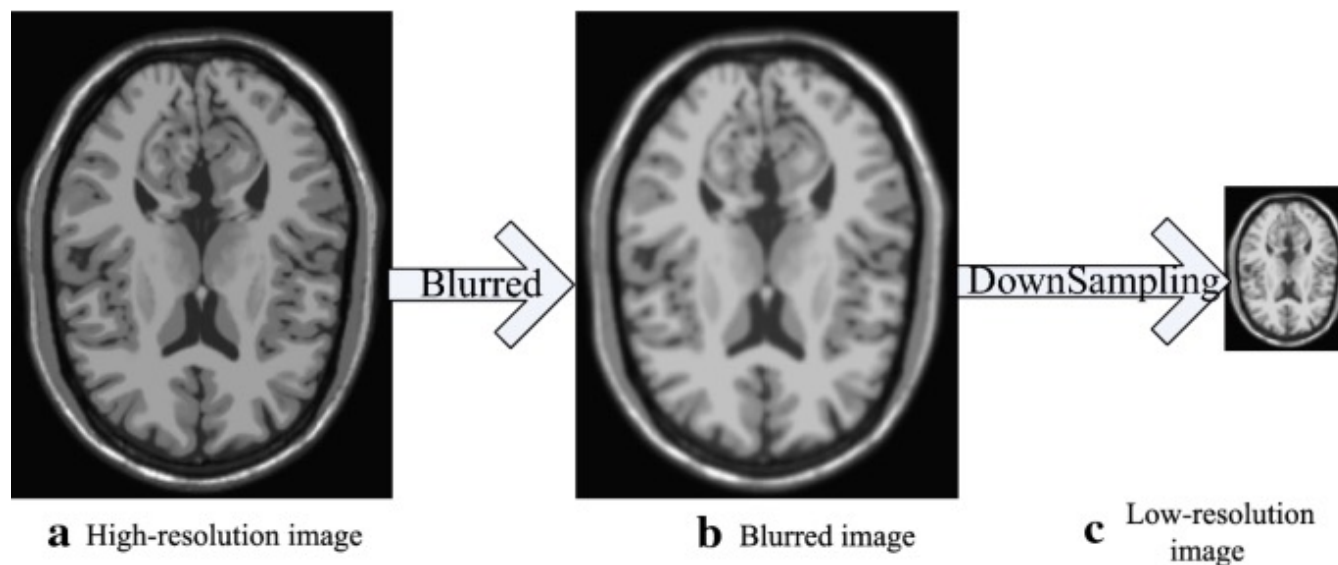
How can AI help in Healthcare?

- Preparation
 - Summarization of Health Records (Use of MMAI)
- Logging
 - Current data of patient
 - The patient says he is feeling pukish (NLP)
 - BP before and after medicines (Pattern Recognition)
- Research
 - Prediction, Classification, Efficiency, Creating vaccines.



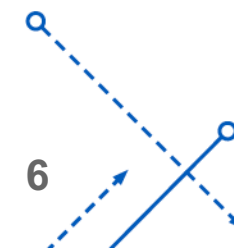
Increasing efficiency of MRI machines

- Use GenAI to make old MRI machines useful.



My Research in Parkinson's disease

- Creating a MMAI system which will assist doctors for early prediction of Progressive Parkinson's disease.
- Predict at what age, the patient might start showing symptoms of Parkinson and at what stage.
- Created our own dataset with the data gathered from ~800 people.
- 23 tests, out of which 15 are impactful.



TEXT

Family History
Clinical Diagnosis
UPDRS (1-4)

IMAGES

MRI Scans

NUMBERS

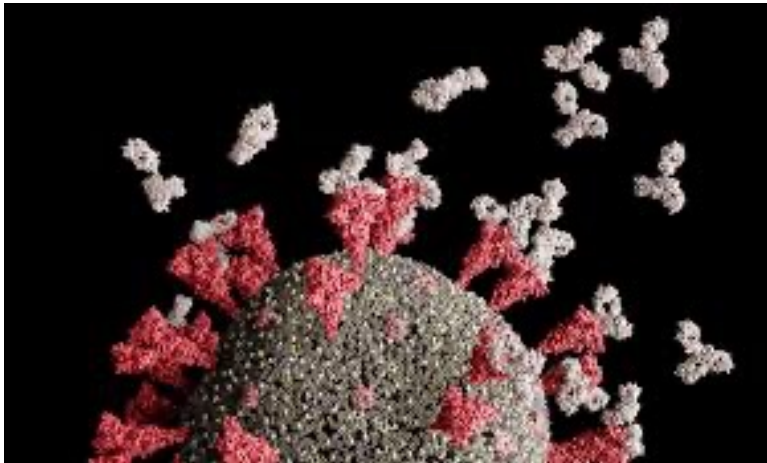
Hopkin's Verbal
Depression Scale
Epworth Sleepiness
Cognitive Assessment

MMAI

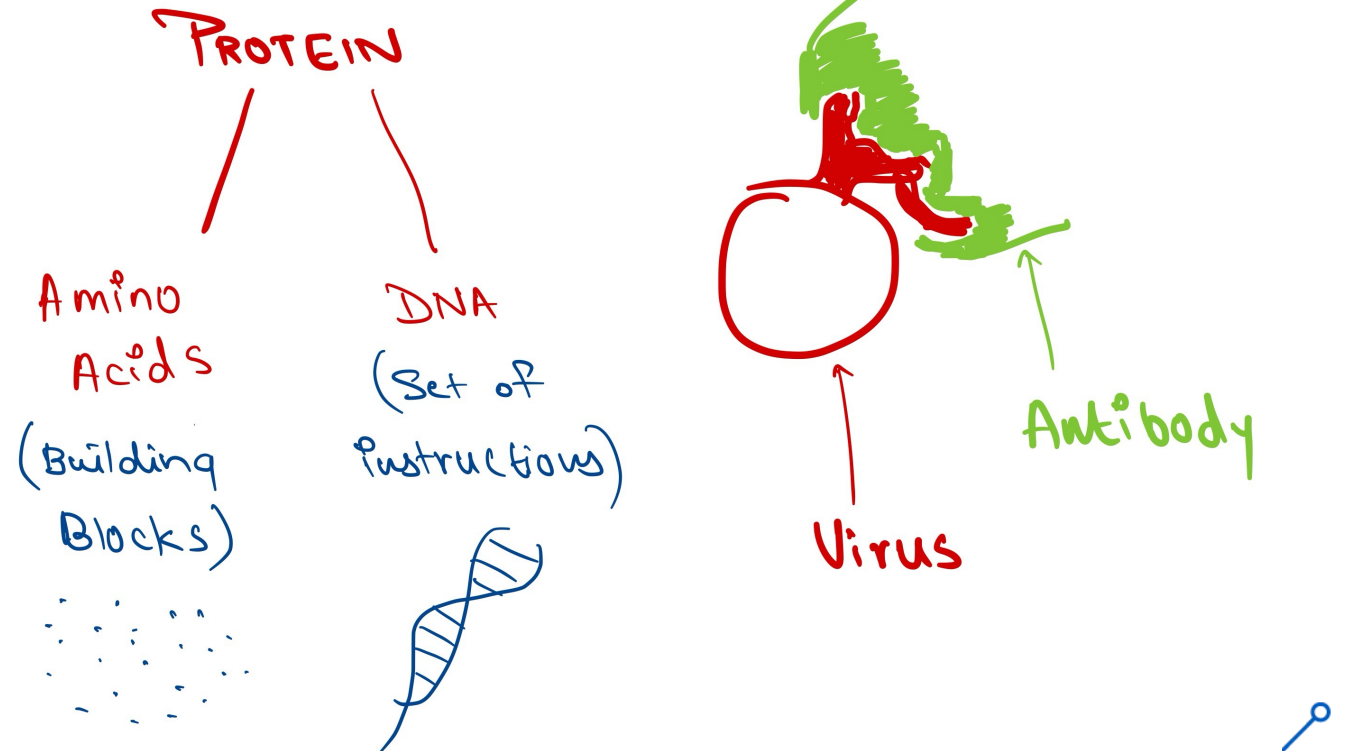
Age,
Stage
(outcome)

GenAI for vaccine creation (Leonardo Castorina, UoE)

- Create a 3D structure of antibody that fits perfectly to the protein spike.

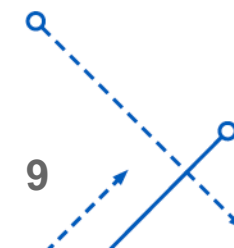


White: Covid antibodies
Red: SARS- CoV-2 virion



Future

- **OXIPIT**
 - CE Class IIb approved for autonomous use.
 - MMAL system to generate a chest report from chest X-rays.
 - Does not need any radiologist.
- **Med PaLM 2 (Google)**
 - First AI to pass US Medical Licensing Exam (86.5%)
- **Med PaLM-M (Google)**
 - Generates medical report from the data received from tests in pathology, radiology images, patient logs.
- **DevsHealth** (molecular model), **Freenome** (cancer detection).



THANK YOU!