

A dark, moody photograph of a person's hands typing on a laptop keyboard. The image is dimly lit, with the primary light source highlighting the keys and the hands. The overall tone is professional and technological.

FEDERATED LEARNING

OVER IOMT

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Q and A

INTRODUCTION TO IoMT

- Is the subset of the broader Internet of Things (IoT).
- IoT is assimilated into various medical devices and equipment, leading to the progression of IoMT.
- It has captured the entire smart healthcare framework.
- facilitates convenient data accessibility, economical patient care and treatment services, rapid system deployment, and enhanced efficiency.

DATASET

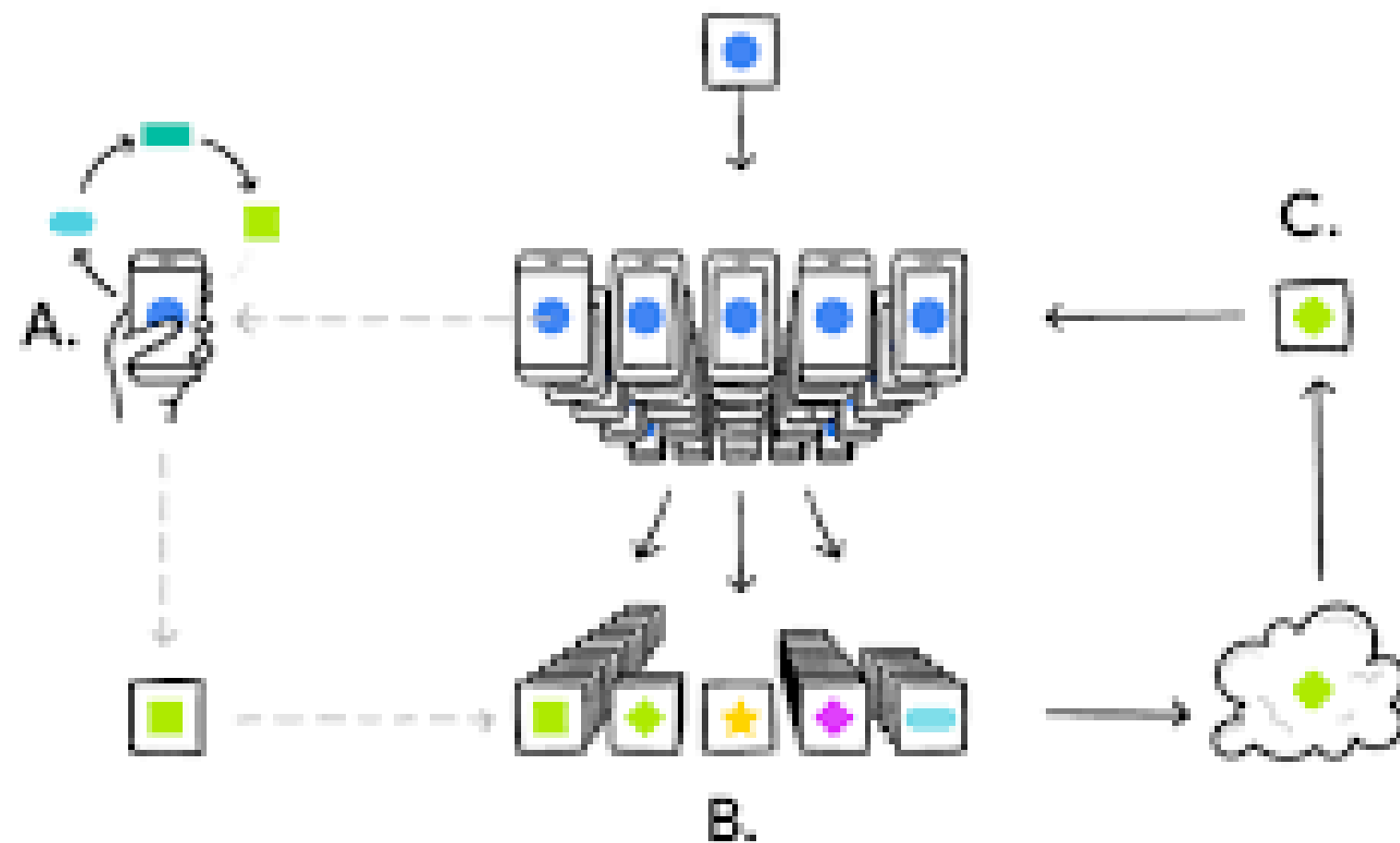
	Image Index	Finding Labels	Follow-up #	Patient ID	Patient Age	Patient Gender	View Position	OriginalImage[Width	Height]	OriginalImagePixelSpacing[x	y]	Unnamed: 11
0	00000001_000.png	Cardiomegaly	0	1	58	M	PA	2682	2749	0.143	0.143	NaN
1	00000001_001.png	Cardiomegaly Emphysema	1	1	58	M	PA	2894	2729	0.143	0.143	NaN
2	00000001_002.png	Cardiomegaly Effusion	2	1	58	M	PA	2500	2048	0.168	0.168	NaN
3	00000002_000.png	No Finding	0	2	81	M	PA	2500	2048	0.171	0.171	NaN
4	00000003_000.png	Hernia	0	3	81	F	PA	2582	2991	0.143	0.143	NaN
5	00000003_001.png	Hernia	1	3	74	F	PA	2500	2048	0.168	0.168	NaN
6	00000003_002.png	Hernia	2	3	75	F	PA	2048	2500	0.168	0.168	NaN
7	00000003_003.png	Hernia Infiltration	3	3	76	F	PA	2698	2991	0.143	0.143	NaN
8	00000003_004.png	Hernia	4	3	77	F	PA	2500	2048	0.168	0.168	NaN
9	00000003_005.png	Hernia	5	3	78	F	PA	2686	2991	0.143	0.143	NaN

- Total images: 1,12,120
- patients: 30,805
- size: 1024*1024

ResNet34

- A DL model, known for ability to train deep network.
- It doesn't need large size labelled dataset.
- Is more efficient.
- ResNet-34 is often used for more challenging computer vision tasks.
- Has less runtime, human resources and computational power.
- The resnet34 model architecture consists of Deep CNN with residual blocks.

FEDERATED LEARNING



A- machine learning model
B- Delta update
C- Delta update aggregated

IMPLEMENTATION

FUTURE SCOPE AND CONCLUSION

- Enhanced Privacy and Security
- Real-Time Healthcare
- AI-Driven Diagnostics
- Personalized Medicine
- IoMT Integration
- Edge Computing

In conclusion, Federated Learning over IoMT offers a path toward more effective, patient-centric healthcare, with strong safeguards for data privacy and security, making it a valuable approach for the future of the healthcare industry.

THANK YOU!