

# Revolutionising Healthcare with Trustworthy AI

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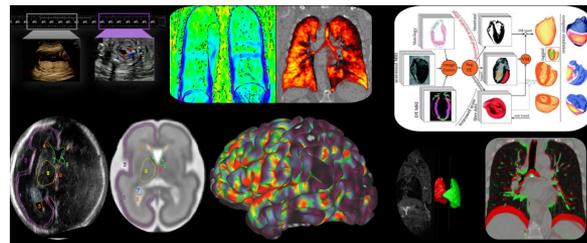
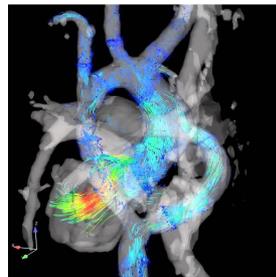
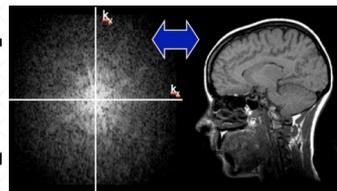
THE DEPARTMENT OF  
**COMPUTER SCIENCE & ENGINEERING**  
計算機科學及工程學系



香港科技大學  
THE HONG KONG UNIVERSITY OF  
SCIENCE AND TECHNOLOGY

# AI Reshapes Clinical Workflow

from acquisition to prognosis



Acquisition

Reconstruction

Visualization

Analysis

Treatment & Prognosis

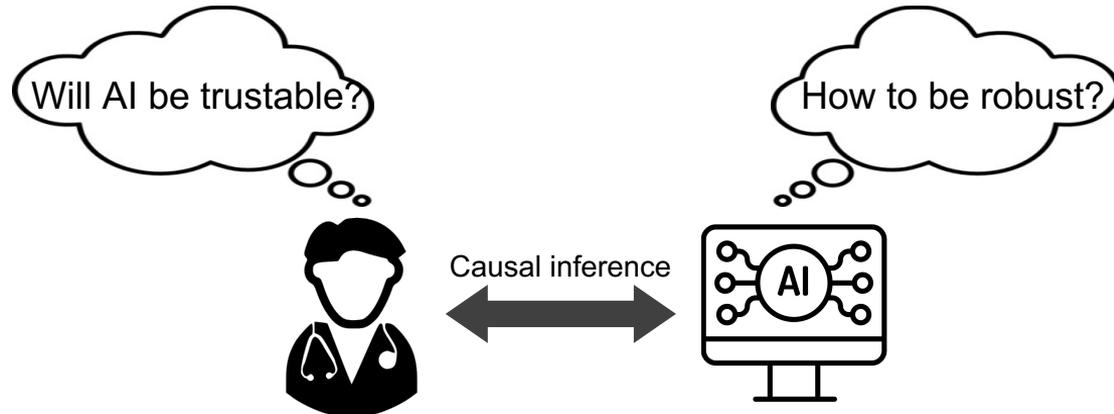
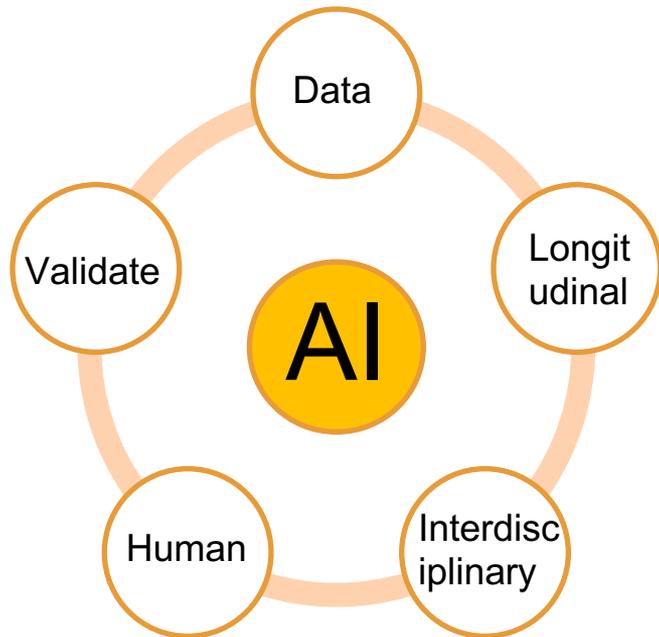
Safer, Faster, Better

See the unseeable, Accurate, Quantitative

Decision support, Minimize risk

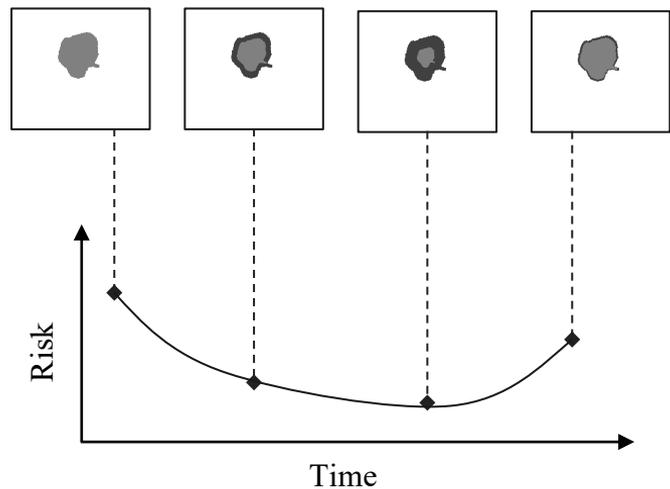
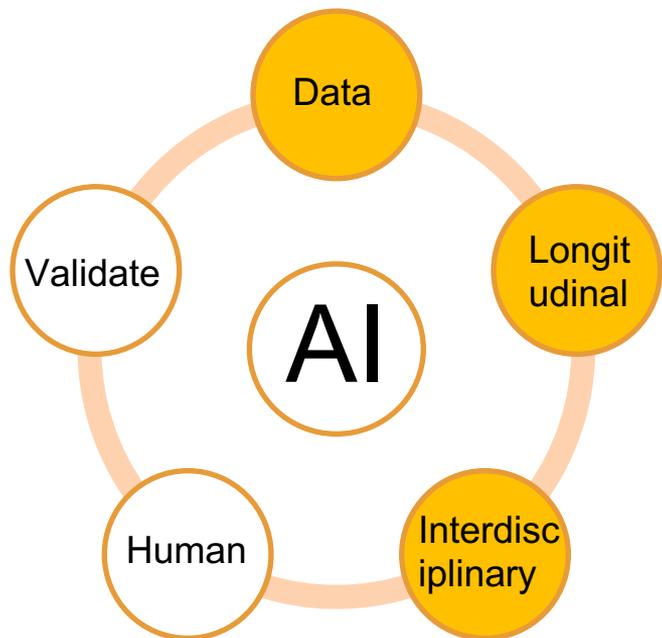
# Research Direction

- ❑ Trustable, generalizable, and explainable AI algorithms.



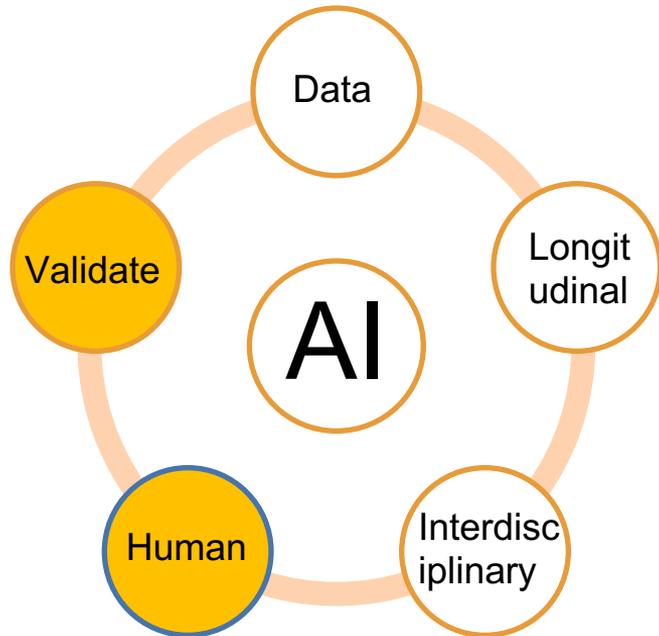
# Research Direction

- ❑ Full-stack AI solution in data acquisition, screening, diagnosis, progression, treatment, and prognosis (e.g., molecular underpinning and survival analysis).

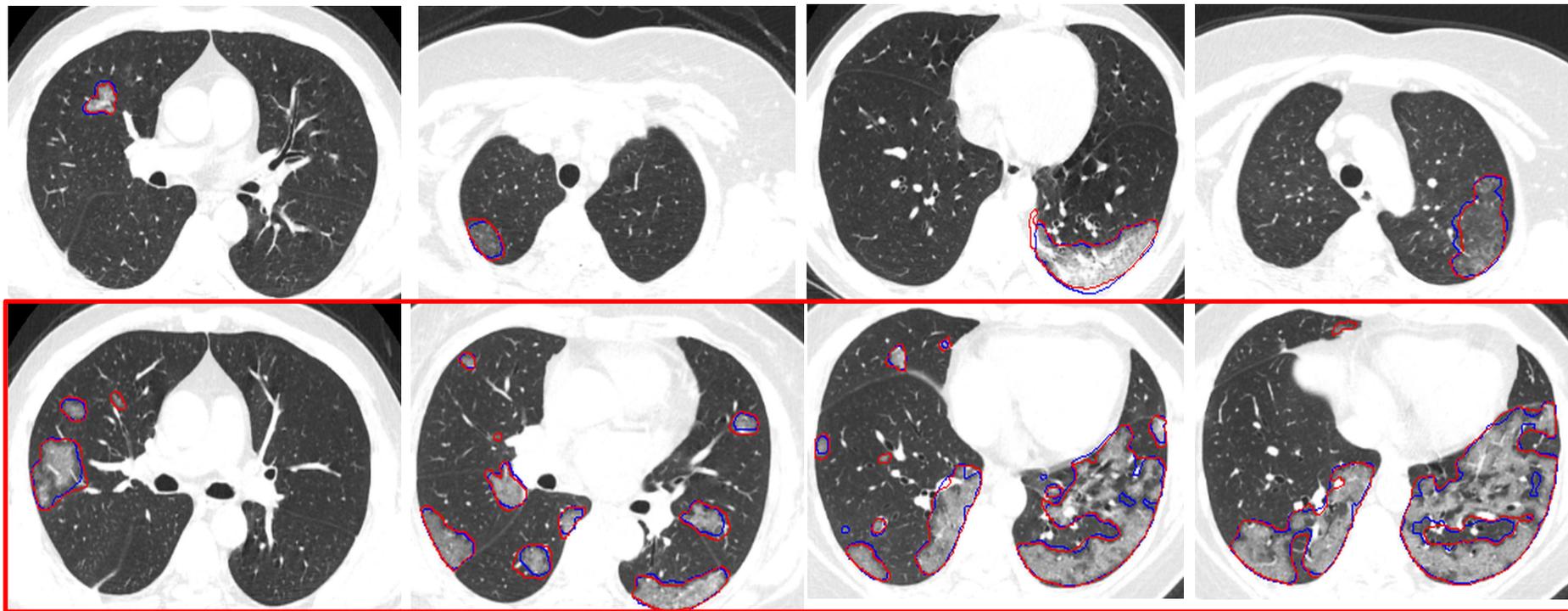


# Research Direction

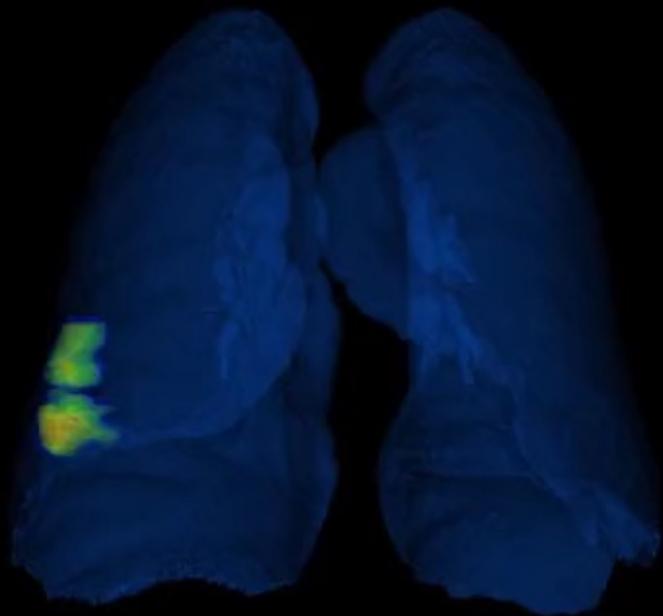
- ❑ Human-machine collaboration with application to clinical translation and validation, etc.



## Covid-19 CT Lesion Segmentation for Quantitative Evaluation



— Prediction — Ground truth

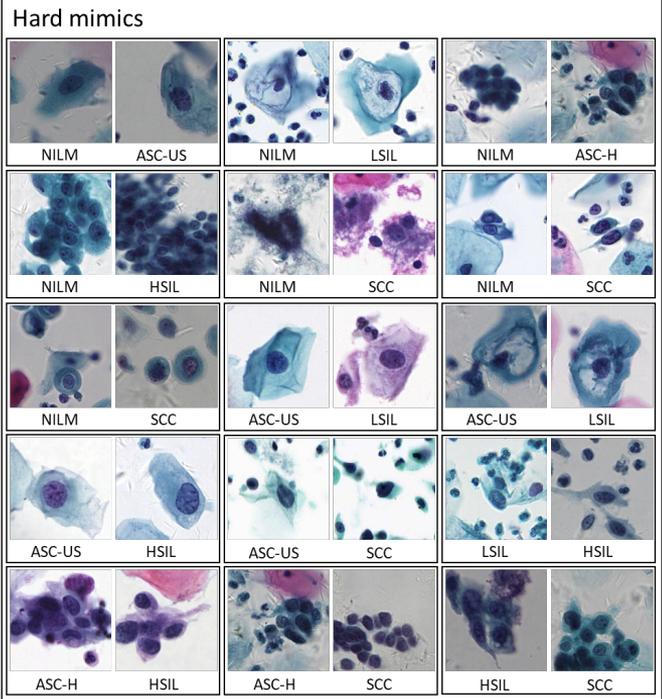
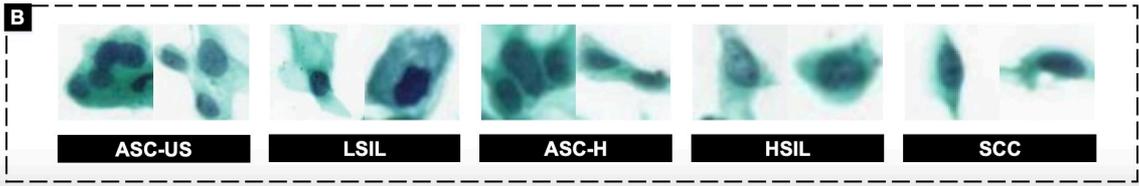
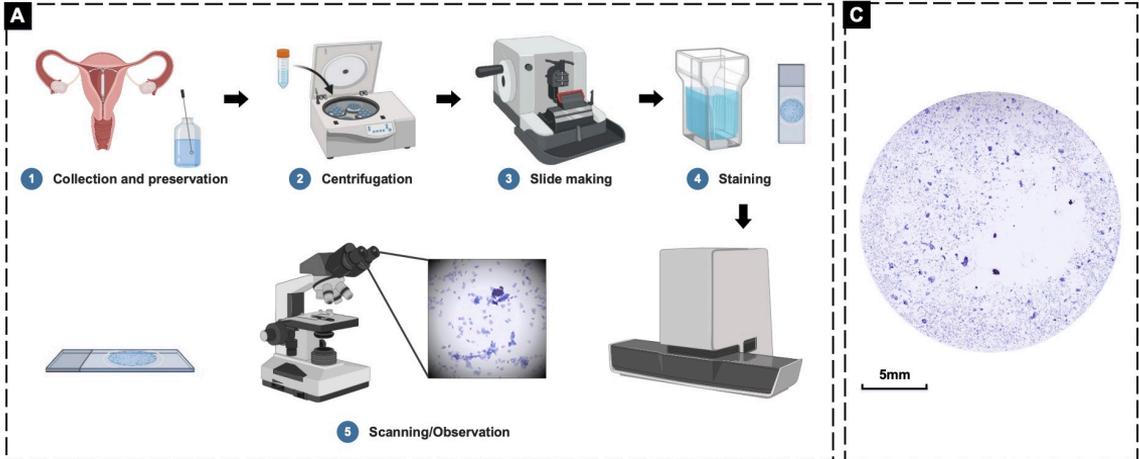


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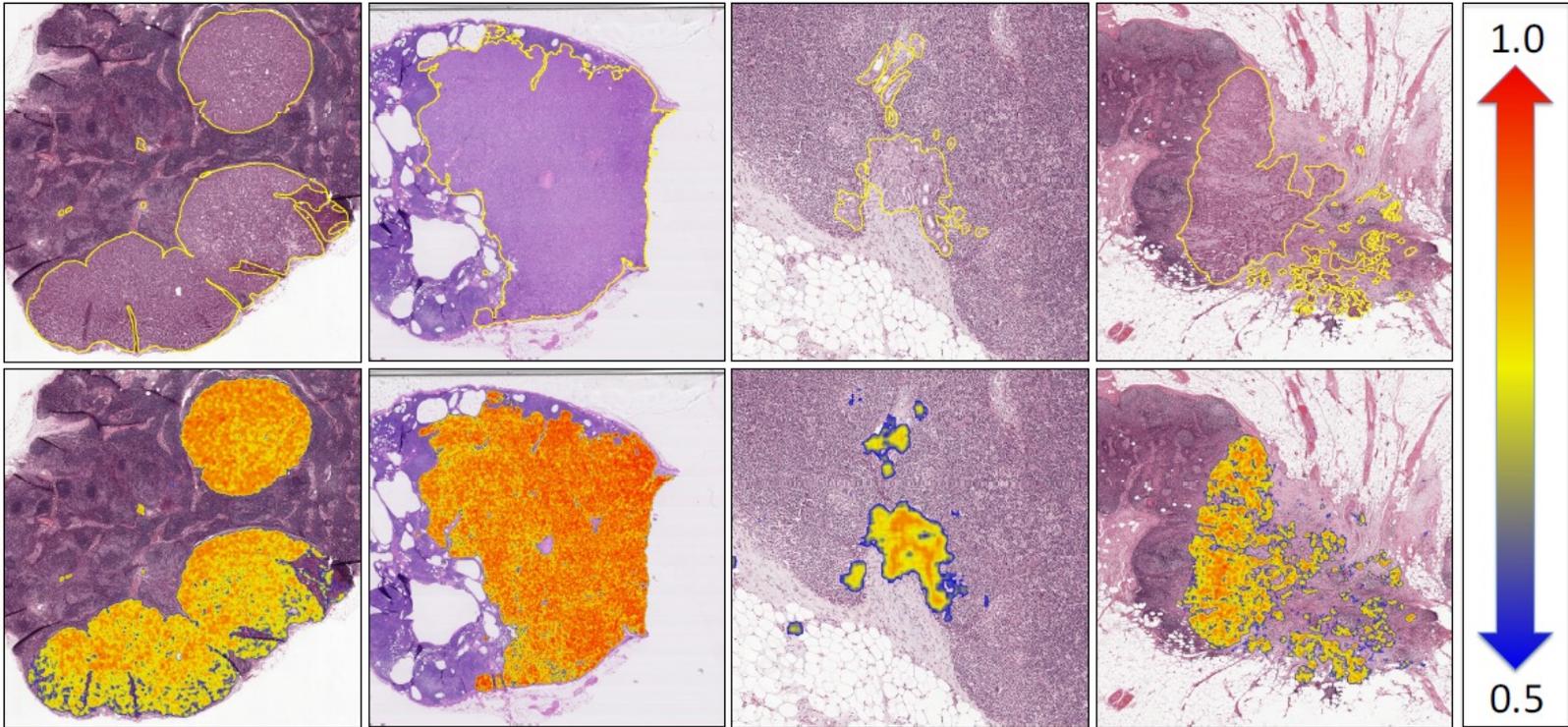
A histological section of tissue, likely stained with hematoxylin and eosin (H&E), showing various cellular structures and tissue architecture. The image is dominated by a large, dark purple area in the center, surrounded by lighter, pinkish-purple regions. The text "Computational Pathology" is overlaid in the center of the image.

# Computational Pathology

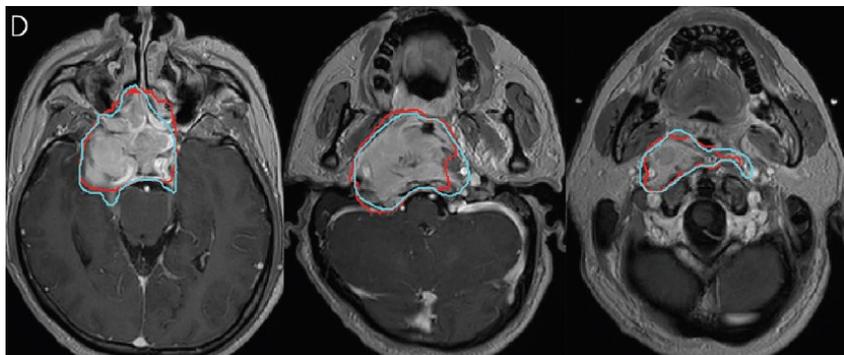
# Cervical Cancer Screening



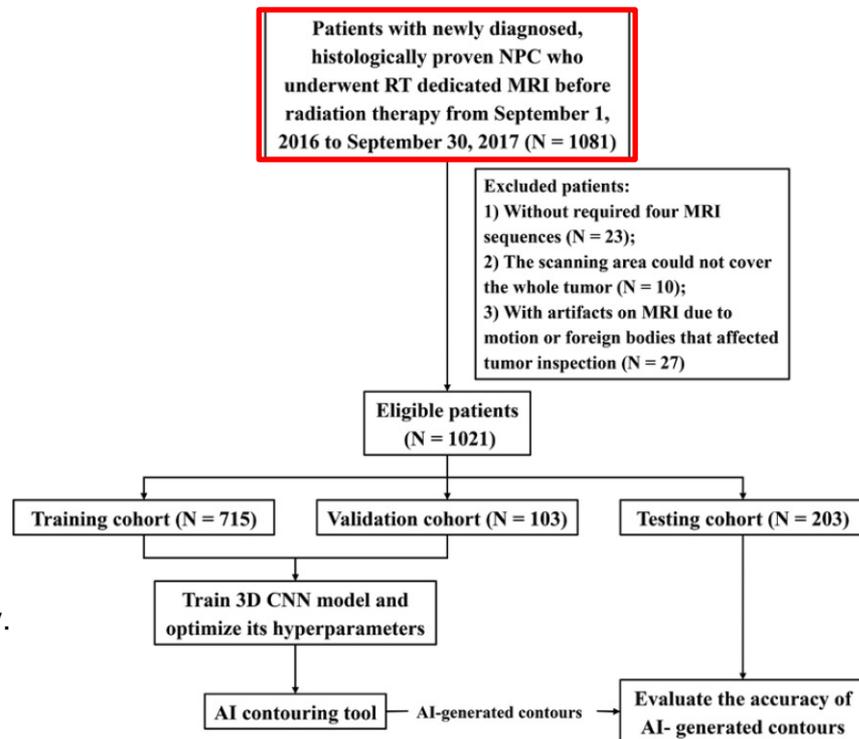
# Breast Cancer Metastasis Detection



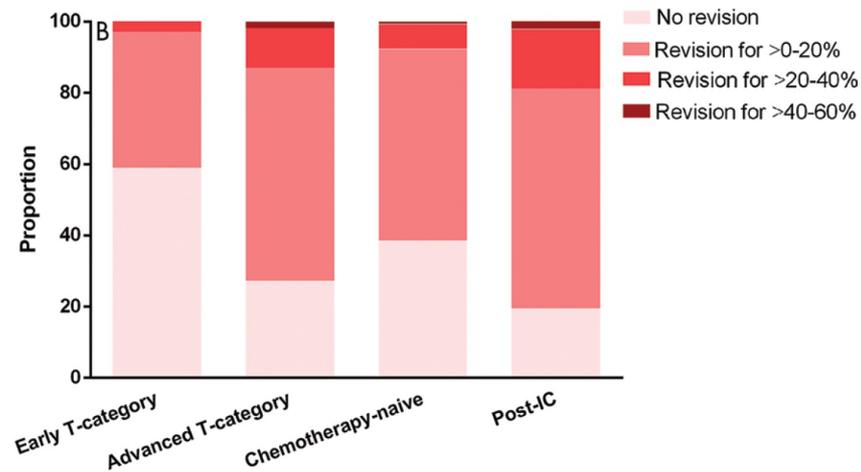
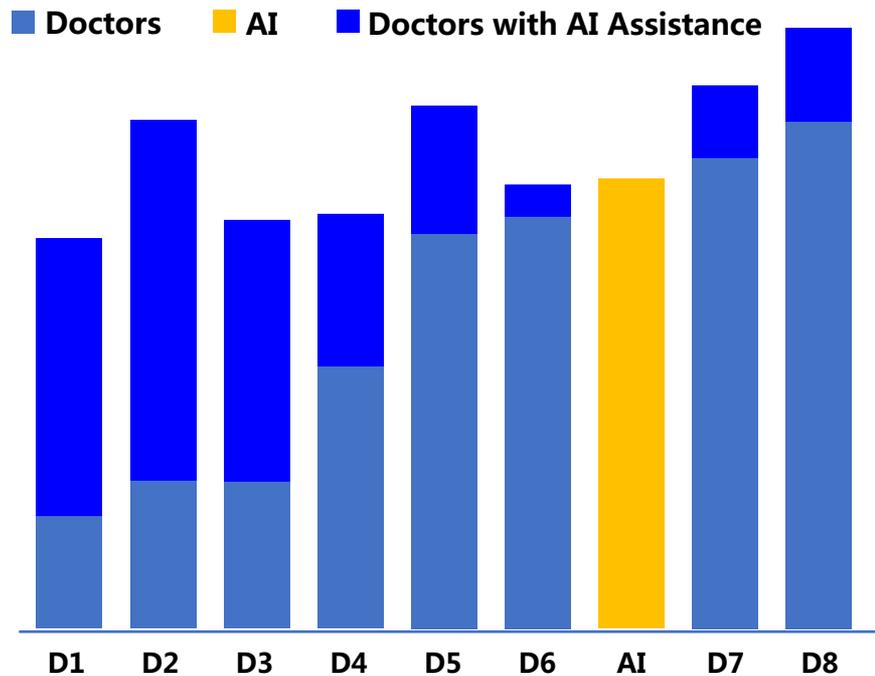
# Automated Contouring of PTV for Nasopharyngeal Carcinoma from MRI



Blue and red lines indicate human experts and AI, respectively.



# Automated Contouring of PTV for Nasopharyngeal Carcinoma from MRI



# Collaborators



威爾斯親王醫院  
Prince of Wales Hospital



香港中文大學醫學院  
**Faculty of Medicine**  
The Chinese University of Hong Kong



Hong Kong Eye Hospital



**HKU Med** LKS Faculty of Medicine  
The University of Hong Kong  
香港大學李嘉誠醫學院



中山大學孫逸仙紀念醫院  
SUN YAT-SEN MEMORIAL HOSPITAL, SUN YAT-SEN UNIVERSITY



中山大學  
附屬腫瘤醫院  
SUN YAT-SEN UNIVERSITY CANCER CENTER



深圳市人民醫院  
SHENZHEN PEOPLE'S HOSPITAL



深圳市婦幼保健院  
Shenzhen Maternity & Child Healthcare Hospital  
南方醫科大學 附屬深圳婦幼保健院



中山大學中山眼科中心  
ZHONGSHAN OPHTHALMIC CENTER, SUN YAT-SEN UNIVERSITY

More than 50+ clinical partners.



# Thank you!

Welcome collaboration !

Email: [jhc@ust.hk](mailto:jhc@ust.hk)

Website: <https://cse.hkust.edu.hk/~jhc/>