Supplementary Online Content

Huang W, Randhawa R, Jain P, et al. Development and validation of an artificial intelligence–powered platform for prostate cancer grading and quantification. *JAMA Netw Open*. 2021;4(11):e2132554. doi:10.1001/jamanetworkopen.2021.32554

eTable 1. Summaries of Biopsy Cohorts

eTable 2. Cross Tabulation: AI vs Training Pathologist Grading Using AI-Assisted Method

eTable 3. Cross Tabulation: Degree of Consensus Grading Using Manual and AI-Assisted Methods

eFigure. Model Architecture of AI-Powered Platform

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Summaries of Biopsy Cohorts

Cohort (n)	Dx	GGG (Case #)	Age at Biopsy (yrs., mean)	Pre-Biopsy PSA (ng/mL, mean)	Pos. Cores (n, mean)	Total Cores (n, mean)	TCV (%, mean)
Training (427)	BPT	N/A (6)	63.8	3.8	0	12.2	N/A
	PCa	1 (143)	61.5	8.4	2.5	12.2	4.9
		2 (118)	63.0	7.2	4.5	11.5	15.0
		3 (45)	65.3	8.7	4.7	11.6	19.0
		4 (53)	68.8	8.7	5.3	11.4	26.4
		5 (62)	65.4	16.7	7.4	10.7	46.6
Validation (162)	PCa	1 (76)	61.9	6.4	2.5	11.7	3.8
		2 (40)	64.5	12.2	4.2	11.7	13.7
		3 (9)	61.2	17.9	5.1	10.7	18.1
		4 (19)	65.4	39.4	3.8	10.6	20.4
		5 (18)	66.9	24.9	6.1	10.7	33.5

GGG: Gleason Grade Group, N/A: not applicable, Pos.: positive, TCV: total cancer volume.

eTable 2. Cross Tabulation: AI vs Training Pathologist Grading Using AI-Assisted Method

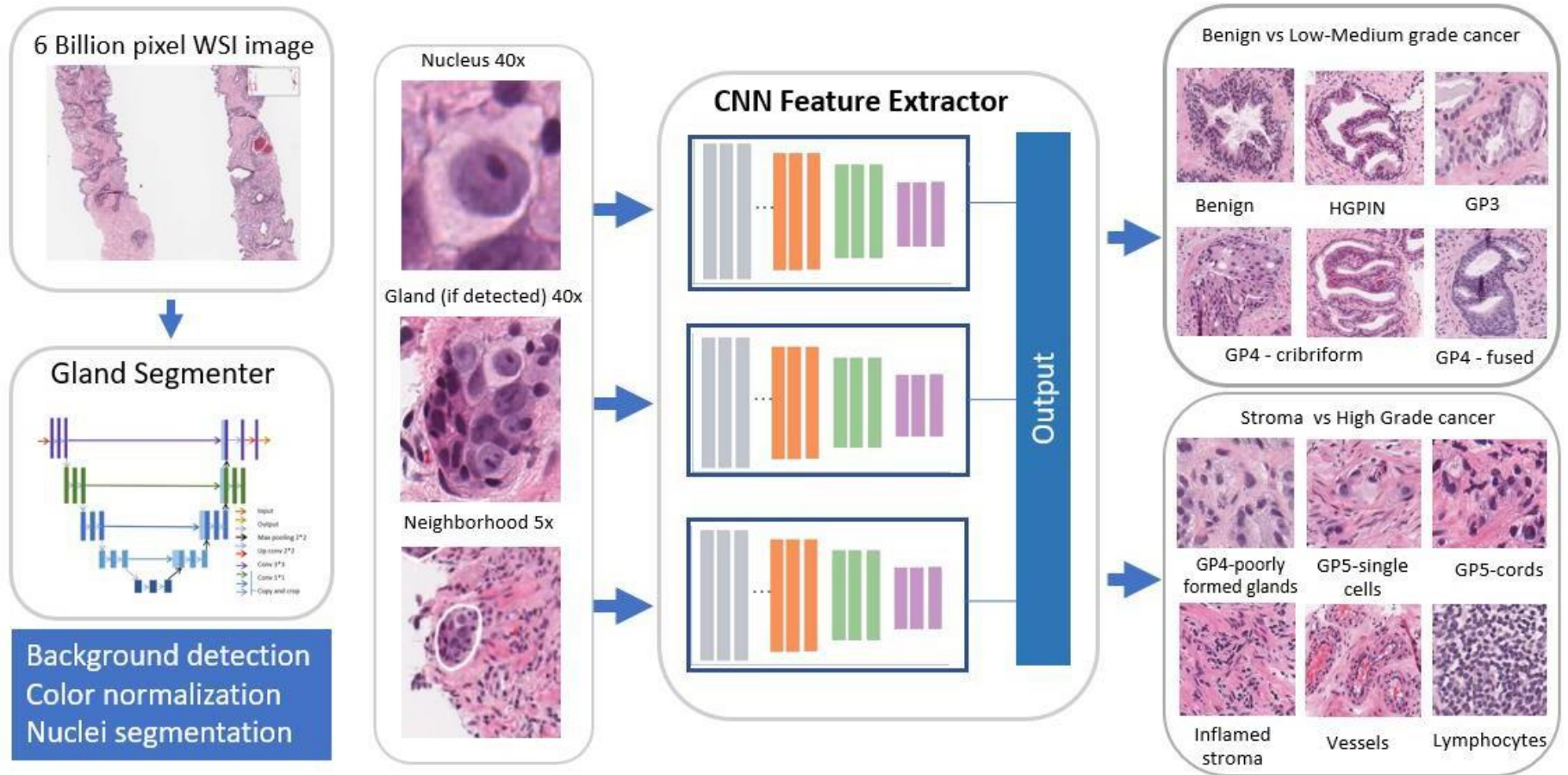|		Pathologist 1					Total
		GGG 1	GGG 2	GGG 3	GGG 4	GGG 5	
Software	GGG 1	36	5	0	0	0	41
	GGG 2	0	63	0	0	0	63
	GGG 3	0	0	15	1	0	16
	GGG 4	0	0	0	11	0	11
	GGG 5	0	0	0	0	31	31
Total		36	68	15	12	31	162

GGG: Gleason Grade Group, Pathologist 1: Training pathologist

eTable 3. Cross Tabulation: Degree of Consensus Grading Using Manual and AI-Assisted Methods

		AI-Consensus		Total N (%)
		2 Viewers N (%)	3 Viewers N (%)	
M-Consensus	None n (%)	1 (0.6)	4 (2.5)	5 (3.1)
	2 Viewers n (%)	13 (8.0)	35 (21.6)	48 (29.6)
	3 Viewers n (%)	18 (11.1)	91 (56.2)	109 (67.3)
Total N (%)		32 (19.8)	130 (80.2)	162

Consensus: grading agreed by at least 2 of the 3 pathologists; M-consensus, consensus by manual method; AI-consensus, consensus by AI-assisted method. P<0.01 by Chi-square test for 100% consensus (green colored cells) among the 3 pathologists between the two methods.

eFigure. Model Architecture of AI-Powered Platform

Using multiple patch sizes at 5x to 40x resolution, multi-scale model captures nuclear detail, glandular and stroma context.