

## **Bayesian denoising framework of Phonocardiogram based on a new dynamical model**

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**Table 1:** Typical Parameters of the synthetic ECG model [4].

Index (i)	P	Q	R	S	T
Time (secs)	-0.2	-0.05	0	0.05	0.3
$\theta_i$ (radians)	$-\pi/3$	$-\pi/12$	0	$\pi/12$	$\pi/2$
$a_i$	1.2	-5	30	-7.5	0.75
$b_i$	0.25	0.1	0.1	0.1	0.4

**Table 2:** Mean values of the PCG model parameters.

Heart Sound	S1		S2	
Index (i)	1	2	1	2
$\alpha_i$	0.4250	0.6875	0.5575	0.4775
$\mu_i$ (radians)	$\pi/12$	$3\pi/19$	$3\pi/4$	$7\pi/9$
$\sigma_i$ (radians)	0.1090	0.0816	0.0723	0.1060
$f_i$ (Hertz)	65.87	74.61	71.10	68.37
$\varphi_i$ (radians)	$3\pi/4$	$9\pi/11$	$7\pi/8$	$3\pi/4$

**Table 3:** The values of  $(\alpha_i, \mu_i, \sigma_i, f_i, \varphi_i)$  of the Gabor kernels used in the PCG dynamical model, to generate the heart sound waveforms depicted in Figure 7 respectively, corresponding to (a), (b), (c) and (d) subfigures. Each heart sound is generated by using two kernels.

Figure Index	Gabor Kernels	
	S1	S2
(a)	(0.80, 0.26, 0.08, 66.66, 2.77)	(0.08, 2.41, 0.06, 66.92, 3.14)
	(0.80, 0.45, 0.08, 78.85, 1.73)	(0.90, 2.44, 0.08, 71.19, 3.14)
(b)	(0.45, 0.28, 0.14, 67.86, 2.83)	(0.70, 2.31, 0.05, 69.12, 3.14)
	(0.93, 0.47, 0.07, 76.59, 3.14)	(0.51, 2.46, 0.07, 73.76, 0.00)
(c)	(0.33, 0.23, 0.08, 63.21, 2.00)	(0.53, 2.39, 0.08, 62.83, 0.18)
	(0.80, 0.44, 0.07, 68.05, 3.14)	(0.52, 2.46, 0.06, 62.27, 3.14)
(d)	(0.43, 0.25, 0.11, 65.97, 2.23)	(0.43, 2.36, 0.04, 67.36, 3.14)
	(0.76, 0.50, 0.08, 71.94, 3.14)	(0.33, 2.45, 0.17, 66.98, 3.13)

