

## Characteristic Tremor Awareness of the Linear Form Variation on the Stable Sensing Material

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**Abstract:** Movement technology is composed of the movement status of the Current Awareness Rate (CAR) and Flux Awareness Rate (FAR) on the tremor body movement form. Condition of the awareness rate by the tremor body movement form is to be modified the wobble movement system. As to fix the movement of signal on the material, we compared a tremor value of the current awareness rate on the current state. The concept of flux awareness rate was identified the reference of flux awareness signal and flux awareness signal by the flux state. For detecting a variation of the CAR-FAR of the maximum and minimum in terms of the movement form and tremor movement value that was a tremor value of the top variation of the Top- $\Phi_{\text{MAX-MIN}}$  with  $25.60 \pm 2.54$  units that was a tremor value of the peripheral variation of the Per- $\Phi_{\text{MAX-MIN}}$  with  $8.76 \pm 2.30$  units that was a tremor value of the limb variation of the Lim- $\Phi_{\text{MAX-MIN}}$  with  $3.31 \pm 0.50$  units that was a tremor value of the center variation of the Cen- $\Phi_{\text{MAX-MIN}}$  with  $0.51 \pm 0.01$  units.

**Key words:** Movement technology, current awareness, flux awareness, awareness rate system, modified

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### INTRODUCTION

Linear form of awareness system is assumed the variation of the current layer which proposed the motion with a different force depending on the direction of the velocity. The awareness form is incorporated such a material into a 2-dimensional plate in the form of a flux layer. The awareness form is encountered the movement in many flux awareness applications. Examples may include devices used in stable sensing systems in which the current layer are able to yield symmetric variation characteristics in order to generate larger movement in the stable one during compression (Wang *et al.*, 2006). A similar concept has been proposed in stable sensing ability to prevent body sway from falling. Numerical simulations of the vibrations induced by a pair of moving masses prove that the current material dependent on the state of the structural displacement of the current layer and the velocity of the variation suppresses the flux vibrations material (Chase *et al.*, 2006; Mulligan *et al.*, 2006; Hazaveh *et al.*, 2016). In this study was the item of the current-flux technology that was composed of the movement awareness with the tremor body movement form by the condition of the awareness rate. This function was happened a tremor value of the floating-liquid function by the awareness rate to define a movement data from the basis reference by current rate and flux rate. Also, the wobble movement was to assess the capacity of the movement form with the control degree of

awareness rate on the CAR-FAR that was shown the current and flux form by the tremor awareness rate system.

### MATERIALS AND METHODS

**Sequence control procedure:** The Tremor Awareness Form (TAF) is used to come out the tremor body movement form on the movement awareness system. Tremor is come out the various changes through current and flux awareness rate. The tremor awareness action is come out to result in accordance with the parameter of Current Awareness Rate-Flux Awareness Rate (CAR-FAR). The CAR-FAR is exhibited with experiment on the different awareness of the TAF that is come out in the tremor effort and wobble movement (Kim and Lee, 2011; Kim and Hwang, 2015; Kim *et al.*, 2017).

The Tremor Awareness Form System (TAFS) was come out the linear form by the Current Awareness Rate (CAR). Specification of SPSS was come out the current-flux that was similar to a tremor movement by the Movement Technology (MT). The tremor movement was modified to control in the wobble condition that was generated by the MT tool. The tremor parameter by SPSS was generated with movement data by the Tremor Current Rate (TCR) and Tremor Flux Rate (TFR). The TFR article by SPSS was come out with flux combination of data parameters by tremor-movement rate. The Wobble Tremor Movement (WTM) was estimated a wobble awareness technology of x-y direction from Center of Axial (COA) on

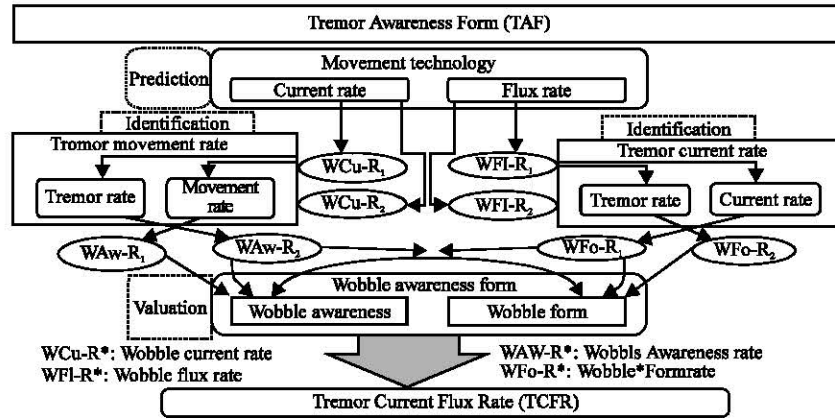


Fig. 1: System block of tremor awareness by linear form on the movement technology

the Tremor Movement (TM) of SPSS. The Tremor Current Flux Rate (TCFR) was comprised the Wobble Awareness (WA) and Wobble Form (WF) on SPSS. The TCFR was acquired on the wobble to count by the TM (Fig. 1).

**Multiple alignments of awareness form and its evaluation:** The Tremor Current Flux Awareness (TCFA) was estimated the awareness form system of the Dual Inverted Balance Link Model (DIBLM) by the Center of Mass (COM) from Center of Axial (COA) and allows examining current-flux movement of balance-control mechanisms. The TCFA of DIBLM ignores the material weight and the horizontal forces acting on it. There was acquired to computer analysis a signal data by the data control function that measuring signal range was a tremor-current-flux sway of material. The Current Flux System (CFS) model applies to quiet stance where the vertical sway angle 'y' is small. The different interval range with the tremor-current-flux moment of inertia from sway angle is calculation  $\ddot{y}_{sc}$  that requires:

$$\ddot{y}_{sc} = mgh(y_{scf} - y_{scf}) \quad (1)$$

$$Y_{TCFA}(s) = \frac{g/h}{(g/h)s^2} Y_{\Phi_{scf}}(s) \quad (2)$$

$$\hat{y}_{\Phi_{scf}}(n) = \frac{T\sqrt{g/h}}{2} e^{-|n|T\sqrt{g/h}} y_{\Phi_{scf}}(n) \quad (3)$$

Here,  $I = mh^2$  is the material movement of inertia, 'm' the material moment of the COM, 'h' the material height of the COM, 'tcf' the gravitational acceleration,  $y_{scf}$  and  $\ddot{y}_{scf}$  the tremor-current-flux COM displacement and acceleration whereas  $y_{sc}$  is the tremor-current-flux COM displacement (Winter, 2004). Laplace-transforming Eq. 1 gives (Tossavainen *et al.*, 2006). Partial fractioning, convoluting (\*) and discretizing Eq. 2 with respect to time

gives (Tossavainen *et al.*, 2006). The 'T' is the sampling interval. The force platform records the 'TCF' of COM excursions  $y_{\Phi_{scf}}(n)$ .

## RESULTS AND DISCUSSION

**Properties of the sequence selection:** The experiment of Taf-form was created the Taf- $\Phi_{MAX}$ , Taf- $\Phi_{MIN}$  and Taf- $\Phi_{AVG}$  database which are collected from the tremor body movement form by the Taf- $\Phi$  effort (Table 1). Tremor body movement form data are used MATLAB 6.1 for the calculations.

**Improvements of multiple sequence selections:** Tremor Awareness Form (TAF) is identified the movement status of the Tremor Current Rate (TCR) and Tremor Flux Rate (TFR) on the Awareness Technology (AT) condition. AT was to fix the fine objects of the Tremor Current Rate (TCR) on the Taf-form. And PT was to maintain the equivalent things of the Tremor Flux Rate (TFR) on the Taf-form. The results are identified the Tremor Awareness Form System (TAFS) in accordance with the parameter of Current Awareness Rate (CAR). The experiment is generated superior an alteration of Flux Awareness Rate (FAR) is shown in the Wobble Awareness Form Effort (WAFE).

**Comparison database of CAR-FAR on the Taf- $\Phi_{MAX}$  and Taf- $\Phi_{MIN}$  and Taf- $\Phi_{AVG}$ :** Tremor Awareness Form (TAF) on the top (Top- $\Phi$ ) condition was to display a Current Awareness Rate-Flux Awareness Rate (CAR-FAR) value for the Taf-Top- $\Phi_{MAX}$ , Taf-Top- $\Phi_{MIN}$  and Taf-Top- $\Phi_{AVG}$  (Fig. 2). The large tremor of the Taf-Top- $\Phi_{MAX}$  was to the normal direction in the TAFS. Furthermore, TAF effort of top CAR-FAR was the small tremor to difference between the Taf-Top- $\Phi_{MIN}$  and Taf-Top- $\Phi_{AVG}$  with the same direction in the TAFS. In the TAF effort of top CAR-FAR was come out a very large tremor at  $30.59 \pm 3.40$  unit

Table 1: Average of the tremor wave forms: the top CAR-FAR (Taf-Top  $\Phi_{MAX,AV}$ ), peripheral CAR-FAR (Taf-Per  $\Phi_{MAX,AV}$ ), limbus CAR-FAR (Taf-Lim  $\Phi_{MAX,AV}$ ) and center CAR-FAR (Taf-Cen  $\Phi_{MAX,AV}$ ) condition. Average of Taf- $\Phi_{MAX}$  and Taf- $\Phi_{MIN}$

Average $\Phi$	Top $\Phi_{Avg,CAR,FAR}$	Per $\Phi_{Avg,CAR,FAR}$	Lim $\Phi_{Avg,CAR,FAR}$	Cen $\Phi_{Avg,CAR,FAR}$
Taf- $\Phi_{MAX}$	30.59 $\pm$ 3.40	13.45 $\pm$ 2.52	4.68 $\pm$ 0.800	0.77 $\pm$ 0.060
Taf- $\Phi_{MAX,MIN}$	25.60 $\pm$ 2.54	8.76 $\pm$ 2.30	3.31 $\pm$ 0.500	0.51 $\pm$ 0.010
Taf- $\Phi_{MAX,AVG,MIN}$	7.80 $\pm$ 0.41	(-0.31) $\pm$ 0.93	0.29 $\pm$ (-0.05)	(-0.01) $\pm$ (0.04)

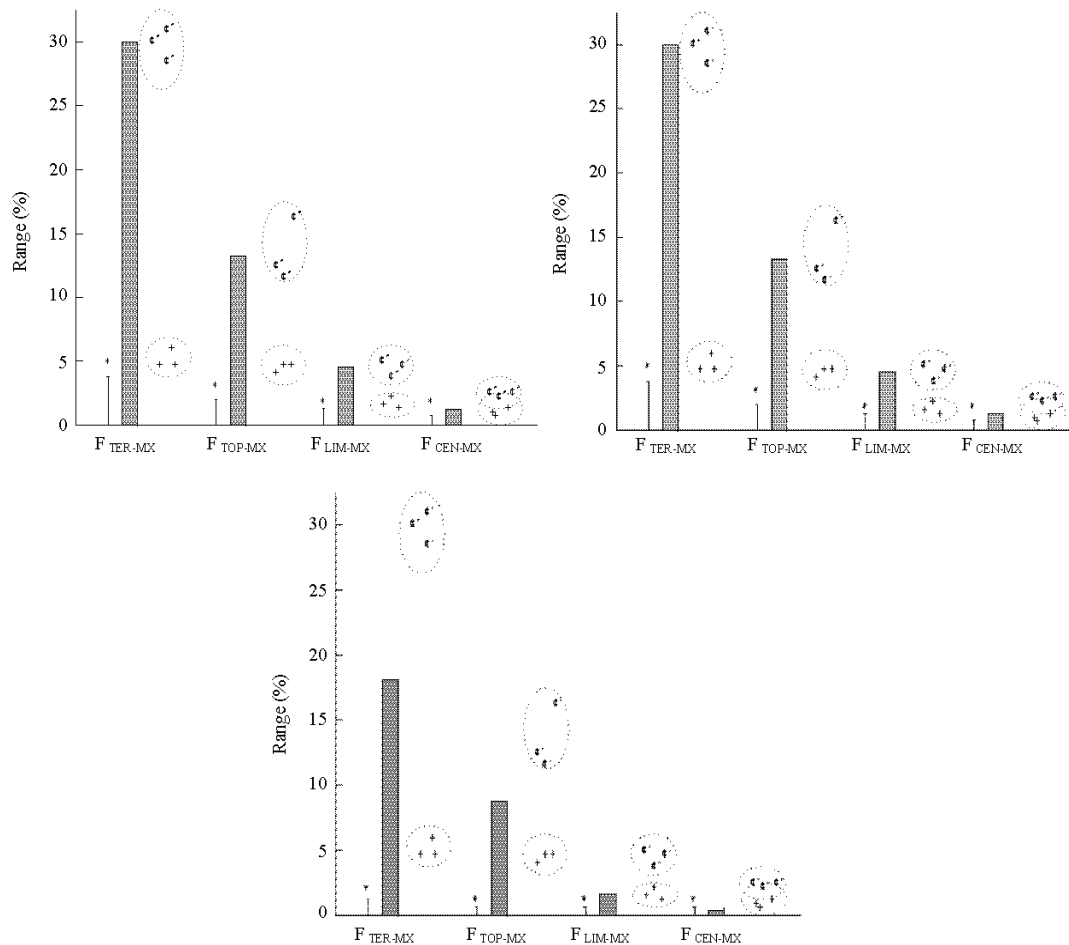


Fig. 2: Taf-function of the data on the tremor wave condition for action: for activity: parameter of the Taf-Top- $\epsilon_{MAX}$ , Taf-Per- $\epsilon_{MAX}$ , Taf-Lim- $\epsilon_{MAX}$  and Taf-Cen- $\epsilon_{MAX}$

with Taf-Top- $\Phi_{MAX}$  of the tremor wave form. In the top CAR-FAR of Taf effort was come out small tremor at 4.99 $\pm$ 0.85 unit with Taf-Top- $\Phi_{MIN}$  in the TAFS. The superior this effort of tremor wave form in the top CAR-FAR was to be display that a tremor influences was happen the same direction in the TAFS. In the tremor of TAF effort was come out a very large tremor at 17.79 $\pm$ 2.12 unit with Taf-Top- $\Phi_{MAX,AVG,MIN}$ . The wobble phenomenon of the top CAR-FAR was generated superior to propose the TAFS by the wobble wave in the Taf. Tremor Awareness Form (TAF) of peripheral (Per- $\Phi$ ) condition was to display a Current Awareness Rate-Flux Awareness Rate (CAR-FAR) value for the Taf-Per- $\Phi_{MAX}$ , Taf-Per- $\Phi_{MIN}$  and Taf-Per- $\Phi_{AVG}$  (Fig. 2). Taf effort of peripheral

CAR-FAR was the some tremor to difference between Taf-Per- $\Phi_{MAX}$  and Taf-Per- $\Phi_{MIN}$  with the same direction in the TAFS. Whereas, the TAF effort of peripheral CAR-FAR was to be come out a small tremor at Taf-Per- $\Phi_{AVG}$  of the tremor wave form on the normal direction in the TAFS. Taf effort of peripheral CAR-FAR was come out large tremor at 13.45 $\pm$ 2.52 unit with Taf-Per- $\Phi_{MAX}$  of the tremor wave form. In the peripheral CAR-FAR of TAF effort was come out small at 4.69 $\pm$ 0.22 unit with Taf-Per- $\Phi_{MIN}$  in the TAFS. The superior, this effort of tremor wave form in the peripheral CAR-FAR was to be display that a tremor was happen the same direction in the TAFS. But, it was a minute role in the tremor effort of a peripheral movement. In the tremor of TAF effort

was come out very large tremor at  $9.07 \pm 1.37$  unit with Taf-Per- $\Phi_{AVG}$  on the same direction. The wobble phenomenon of the peripheral CAR-FAR was generated superior to alter the TAFS by the wobble wave in the same direction with the top CAR-FAR in the TAF effort direction. Tremor awareness Form (TAF) of limbus (Lim- $\Phi$ ) condition was to display a Current Awareness Rate-Flux Awareness Rate (CAR-FAR) value for the Taf-Lim- $\Phi_{MAX}$ , Taf-Lim- $\Phi_{MIN}$  and Taf-Lim- $\Phi_{AVG}$  (Fig. 2).

TAF effort of limbus CAR-FAR was come out small tremor at Taf-Lim- $\Phi_{MAX}$  and Taf-Lim- $\Phi_{MIN}$  of the tremor wave form on the normal direction in the TAFS. Whereas, differently the very small tremor value of Taf-Lim- $\Phi_{AVG}$  was to the normal direction in the TAFS. TAF effort of limbus CAR-FAR was come out small tremor at  $4.68 \pm 0.80$  unit with Taf-Lim- $\Phi_{MAX}$  of the tremor wave form. In the limbus CAR-FAR of TAF effort was come out slightly little at  $1.36 \pm 0.30$  unit with Taf-Lim- $\Phi_{MIN}$  on the normal direction in the TAFS. The superior, this effort of the tremor wave form in the limbus CAR-FAR was to be display that a tremor was happen the same direction in the TAFS. But it was a superior role in the tremor effort of a limbus movement. In the tremor of TAF effort was come out small tremor at  $3.02 \pm 0.55$  unit with Taf-Lim- $\Phi_{AVG}$ .

The wobble phenomenon of the limbus CAR-FAR was generated superior to alter the TAFS by the wobble wave in the same direction by the wobble movement at the TAF effort. Tremor Awareness Form (TAF) of center (Cen- $\Phi$ ) condition was to display a Current Awareness Rate-Flux Awareness Rate (CAR-FAR) value for the Taf-Cen- $\Phi_{MAX}$ , Taf-Cen- $\Phi_{MIN}$  and Taf-Cen- $\Phi_{AVG}$  (Fig. 2). TAF effort of center CAR-FAR was come out small tremor at Taf-Cen- $\Phi_{MAX}$  and Taf-Cen- $\Phi_{MIN}$  of the tremor wave form on the normal direction in the TAFS. Whereas, differently the small tremor value of Taf-Cen- $\Phi_{AVG}$  was to the normal direction in the TAFS. TAF effort of center CAR-FAR was come out very small tremor at  $0.77 \pm 0.06$  unit with Taf-Cen- $\Phi_{MAX}$  of the tremor wave form.

In the center CAR-FAR of TAF effort was come out very little at  $0.26 \pm 0.05$  unit with Taf-Cen- $\Phi_{MIN}$  on the normal direction in the TAFS. The superior, this effort of the tremor wave form in the center CAR-FAR was to be display that a tremor was happen the opposite direction in the TAFS. But, it was a superior role in the tremor effort of a center movement. In the tremor of TAF effort was come out very small tremor at  $0.52 \pm 0.05$  unit with Taf-Cen- $\Phi_{AVG}$  on the normal direction in the TAFS. The wobble phenomenon of the center CAR-FAR was generated superior to alter the TAFS by the wobble wave in the normal direction.

## CONCLUSION

The wobble movement will be to assess at the ability of the movement form for the control degree of awareness

rate on the CAR-FAR that was shown the current and flux form by the awareness rate system. Wobble awareness system was modified of a form by the special movement and was included a tremor data of wobble movement rate.

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