



## Visual Culture: A Study on the Presence of Alphabetical Pattern in 'Senaman Tua' by using Motion Capture Technology

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### ABSTRACT

*Senaman Tua* (Malay's Ancient Exercise) is a therapeutic exercise from Malay culture. This exercise is blend well aesthetically with Malay culture and Islam which give holistic positive effects on the spiritual side of being able to provide, maintain inner peace, patience in the individual and also able to understand their own inner selves. According to the founder, the essence of the holistic positive effect is from the unseen pattern that embedded in the movement. The aim of this study is to visualize the micro-line the embedded in *Senaman Tua* (Malay's Ancient Exercise) movement by using Motion Capture Technology. With the permission of *Senaman Tua's* founder, *Selangkah Guru* (A Guru's movements) is a dynamic exercise movement of *Senaman Tua* for beginner will be captured by using Motion Capture Technology. There are 33 markers of human anatomy have been captured by using Motion Capture Technology in 1 minute 08 second. The finding show there are presence of alphabetic pattern that generated from the "*Selangkah Guru*" (A Guru's Movements). It can be concluded that visual pattern of "*Lam Alif*" alphabet clearly shows in the mapping of Motion Capture Technology.

## 1. Introduction

Visual culture is a growing interdisciplinary field of study that appear with the interaction of anthropology, art history, philosophy, media studies and other discipline that focus on visual object or how images are created and used within society, in order to develop the understanding of the way of images and artefact can be analysed in relation to the culture social and historical context [5]. As Barthes describe, in visual culture, images analysis contains two level of meaning there are:

- i. the denotative means the image refer to its literal descriptive meaning
- ii. the connotative means rely on cultural and historical context of the images and its viewer [4].

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Therefore, visual culture is a tactic for studying the function of the world addresses via picture, images and visualization rather than text and words. It can be defining as a focus on cultural meaning of a work of art rather than on its aesthetic value [10]. Visualization is a form of delivery information that used to explain an information thru graphic included picture, animation or diagram that can be accessed [9]. He again, explained that visualization is a method of visual things that can't be seen by computerize which is included the understanding of the image and image synthesis such as:

- a. The usage of Signage
- b. Picture
- c. Mark and Symbol
- d. Illustration and colour

Nowadays, in digitalization era of Industry 4.0 is leading everything into digital included business model, environment, production system, machines, operators, product, service, education and visualization [7,18,19]. This digital world offers massive of opportunities to many sectors to embrace the digital revolution; as well as in art, heritage and culture field [17]. In line with digitalization era, Motion Capture Technology (MoCap) is a sensor technology that include with visual cameras and inertial measurement units (IMUs) have been widely recognized in various field of health, human safety, games industry, film industry, medical, manufacturing and more [3,8]. In art, culture and heritage field, Zaidi and Omar [15] explained MoCap not only able to provide information of stability, fitness, speed, energy, weight and movement, but also capable to provide visualization of unseen symbol in traditional of Malay movements [12,14].

In compliance with digitalization era and to sustain the virtues of Malay knowledge, MoCap application have been adopted in this study to visualize the unseen pattern or symbol that generated by human movement in Malay exercise known as *Selangkah Guru* (A guru's movement) originality from *Senaman Tua*.

## 2. Methodology

*Senaman Tua* is a therapeutic exercise originally from Malay world that have been modules and practiced in the community for years. In 2012, this exercise has been recommended by Dato Dr. Zainal Ariffin, Health Director of Malaysia Ministry of Health stated that this exercise suitable practiced for public which can enhance the benefit of physical health and it also function as self-defence movement [2]. In traditional times, the exercises were based on activities or movements found in *Seni Silat* [1]. *Seni silat Melayu* not only serves as self-defense but also as an exercise that benefit well-being of physical and spiritual. *Silat* is well-known as Malay martial art but very few knows there is Malay exercise in *Silat* known as *Senaman Melayu* that widely practiced in the community. It also known as therapeutic exercise for rehabilitee of physical and spiritual well-being. This exercise is well blend with the aesthetic of Malay philosophy and belief, and it contain the therapeutic essence that can't be seen by eyes.

To visualize the tangible visual culture in Malay movement exercise, the application of MoCap have been used to trace the micro-line of the pattern that generated from *Selangkah Guru* ( A Guru's Movements). This exercise is dynamic movements pattern, generally practiced by beginner in *Senaman Tua*. This exercise is purposely to improve the flexibility of movement as a whole but also contain the Malay philosophy of life that can be define as: wholehearted accept what have been decreed by the Almighty, always be positive, be prepared what may come and never give up. This

exercise show that Malay culture is well blend aesthetically with values, belief, mindset and culture in Malay community.

### 2.1 Interview and Involvement with *Senaman Tua* Community

Based on Figure 1, on Feb & July 2019, researcher attended on One-day workshop of *Kursus Senaman Tua Tahap 1 & 2* (Malay's Ancient Exercises workshop of level 1 & 2) in Setapak to obtain the understanding of the exercise movement. On 2<sup>nd</sup> May 2019, researcher started research on field at Setapak, USIM and Kuala Lumpur by directly engaged with the *Senaman Tua* community by attending the class and workshop that conducted by Tuan Guru Azlan Ghanie for 4 months. The *Senaman Tua* module consists 3 levels of understanding toward *Senaman Tua* exercise movements that contain:

- a. ***Gerakan Asas*** known as Basic Movements Exercise that contain 33 patterns movement of single exercise for beginner
- b. ***Gerak Pecahan*** known as Fraction Movement exercise based on single pattern exercise from *Gerak Asas*
- c. ***Gerak Gabungan*** known as Combination Movement Exercise that combine "*Gerakan Asas*" as a whole pattern of exercise movement.



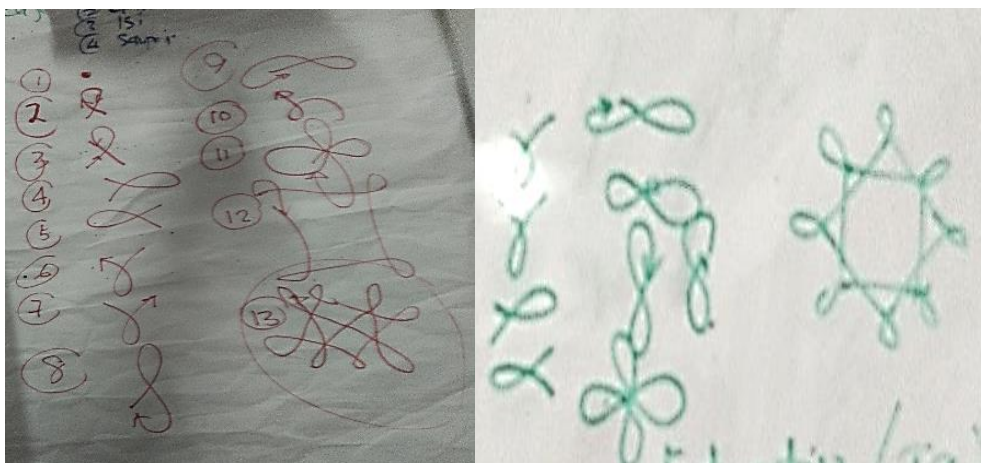
**Fig. 1.** *Senaman Tua* exercise theory sessions, Tuan Guru Azlan explain the knowledge of Malay anatomy, Malay's breathing technique and the benefit of *Senaman Tua* exercise that benefit the physical and spiritual well-being.

According to Figure 2, it took months for individual to remember the movements and the philosophy of the *Selangkah Guru* movements. Based on primary data collected through interview and involvement, *Selangkah Guru* is a dynamic exercise from *Gerak Gabungan* pattern exercise movements which contain Malay's Philosophy, it took about 1-2 minutes of time per person the complete the pattern exercise movements. By permission of Tuan Guru Azlan Ghanie, the data of *Selangkah Guru* is allowed to be studied in this research.



**Fig. 2.** One of the class sessions in Setapak, the community of *Senaman Tua* was practising the *Selangkah Guru* movement

According to Figure 3, after 4 months of involvement in *Senaman Tua* community, Tuan Guru Azlan Ghanie reveal the essence of therapeutic effect in the movement. In the interview, he stated that this unseen pattern is embedded in the exercise movements and that give therapeutic effect to physical and spiritual. He also explains that Malay culture values is lavish with *Budi*, *Hati* and *Halus* that can widely be found in Malay literature [6] or Malay landscape [11] that construct the lifestyle of Malay culture. And this also imply in *Senaman Melayu* exercise movement where one can't feel the shape of the pattern while doing the movement exercise because it's too fine to feel but one will feel the therapeutic effect [16]. By permission of Tuan Guru Azlan, on November 2019, *Selangkah Guru* have been performed by himself to be captured by using Motion Capture Technology in University Sains Malaysia.



**Fig. 3.** The unseen pattern in the movement of *Selangkah Guru*

## 2.2 Capturing *Selangkah Guru* Movement by using Motion Capture Technology

According to Figure 4 and Figure 5, on 23 September 2019, Guru Azlan Ghanie came to Universiti Sains Malaysia to perform *Selangkah Guru* movement in Motion Capture lab with supervision of Dr. Nur Zaidi Azraai, and it took the whole one day to capture this movement. In this process, there are 33 markers point of anatomy involve to capture 3 part of human body there are:

- a. upper body
- b. middle body
- c. lower body which divided in to 2 division there are (a) right and (c) left.

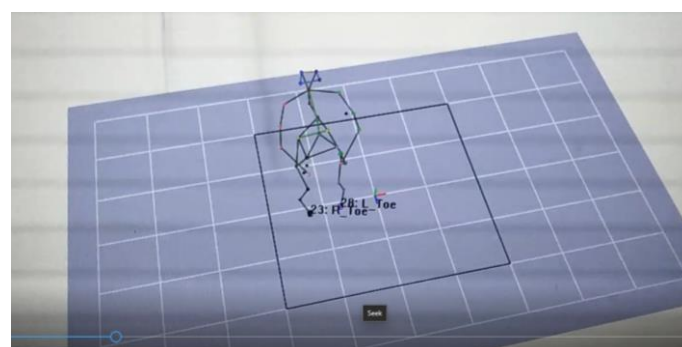


**Fig. 4.** A total of 8 camera of Motion Capture have been used to capture the movement



**Fig. 5.** A total of 33 markers of human anatomy to capture the *Selangkah Guru* movements

These 33 markers point of anatomy function as capturing the trajectory micro-line drawn by the movements of *Selangkah Guru* and the capturing of anatomy in digital shown on Figure 6.

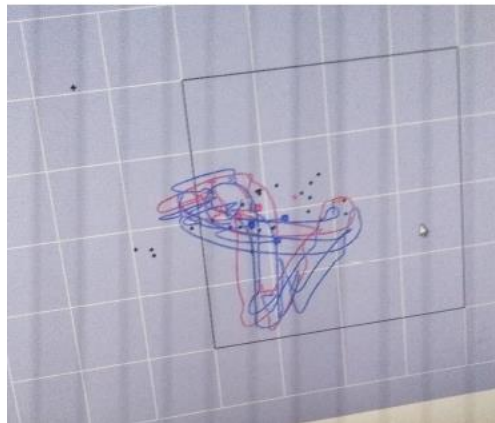


**Fig. 6.** Digital data of 33 markers point of anatomy on Motion Capture Mapping

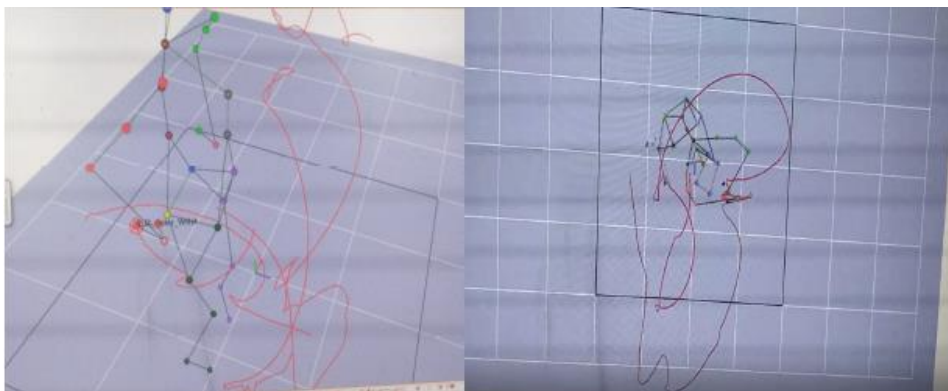


### 3. Results

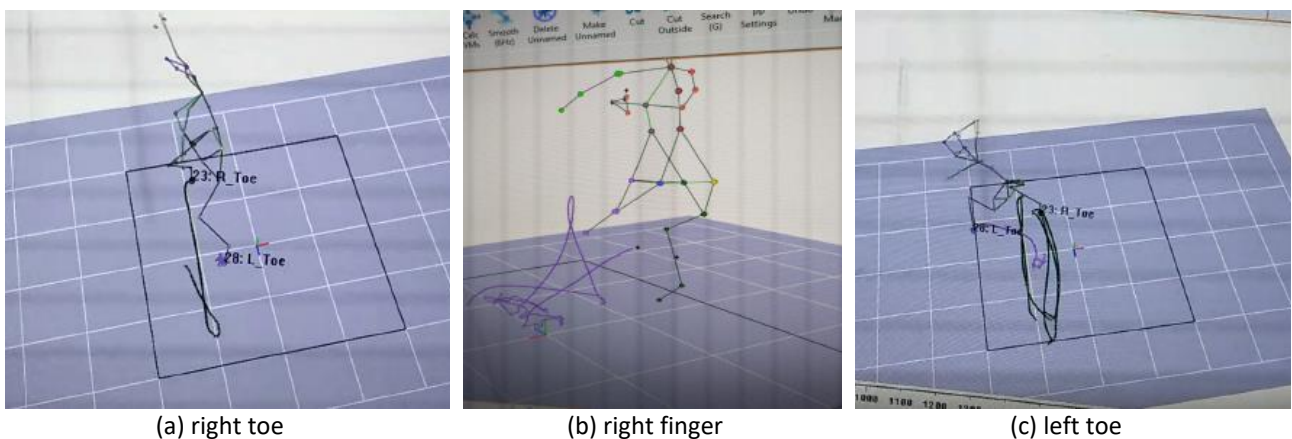
According to Figure 7, Figure 8 and Figure 9, from various of view shown that the trajectory micro-line drawn in *Selangkah Guru* movement have been digitalize by Motion Capture Technology clearly show the continues pattern as shown in Figure 14(a) the unseen sacred pattern.



**Fig. 7.** Digital data of performer's left and right head, the upper body part from top view

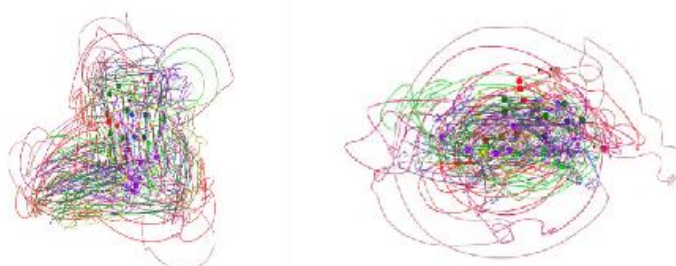


**Fig. 8.** Digital data of performer's (a) right and (b) left finger, the middle body part from left quarters view



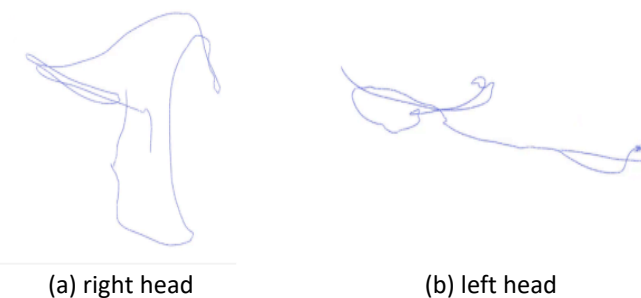
**Fig. 9.** Digital data of performer's (a) and (b) left toe, the lower body part from left quarters view

Figure 10, from bird's eye view perspective show the massive contour line in the *Selangkah Guru* exercise movement, therefore, the analysis digital focus on main anatomy upper body (head), Middle (Finger) and lower body (Toe).

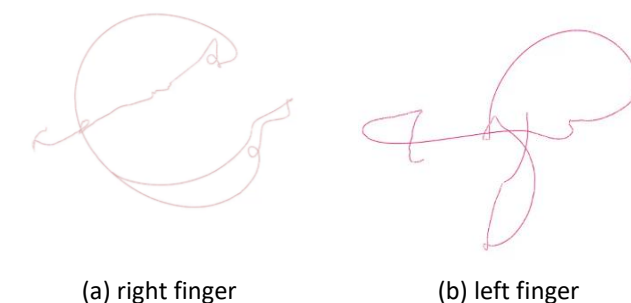


**Fig. 10.** Digital Data of Whole-body movement from *Selangkah Guru* from bird's eye view perspective

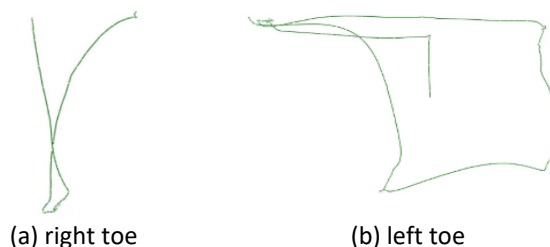
Based on Figure 11, Figure 12 and Figure 13 clearly show the scared pattern start from the dot and the movement draw the pattern.



(a) right head (b) left head  
**Fig. 11.** Digital Data of Trajectory line :(a) right head and (b)left head from *Selangkah Guru* movement from bird's eye view perspective

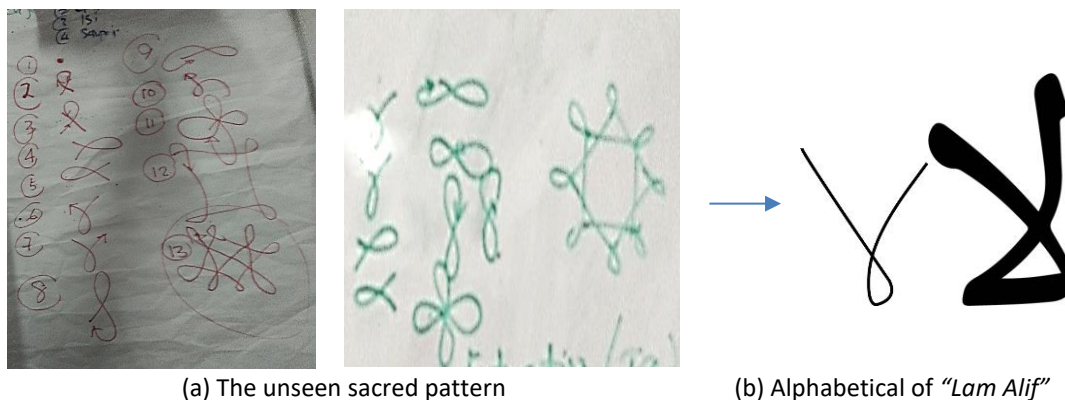


(a) right finger (b) left finger  
**Fig. 12.** Digital Data of Trajectory line: (a) right finger and (b) left finger from *Selangkah Guru* movement from bird's eye view perspective



(a) right toe (b) left toe  
**Fig. 13.** Digital Data of Trajectory line : (a) right toe and (b) left toe from *Selangkah Guru* movement from bird's eye view perspective

Based on the interview, Tuan Guru Azlan Ghanie explain this movements is based on alphabetic of “Lam Alif” ( refer to Figure 14: (b) alphabetic of Lam Alif) in contour shape, that related to “*laa haula wala quwata illa billah*” imply the meaning “*tiada daya dan kekuatan kecuali dengan pertolongan Allah*” (there is no power or strength except with the help of Almighty Allah) which mean the healing is from Allah and “*langkah hidup tidak mati*” means it help the flexibility unlimited movements in exercise. The explanation of “Lam alif” in movements by Tuan Guru Azlan Ghanie, in line with Zaidi explain that “Lam alif” also define as “Lam Jalalah” acronym of “*laa haula wala quwata illa billah*” that related to energy of universal, he also explains, in numerology system of Sufi Naqshahbandi stated that “*tiada ternilai dan tiada dinyatakan angka padanya*” means it so precious that its values cannot determined. Zaidi also explain this symbol is symbolizing the belief of one God, Allah the Almighty. These explanations clearly describe that construction of Malay culture heritage is well blend with Islam belief and philosophy. These clearly stated that this dynamic movement indirectly contain the Islamic Religion belief that led to positive well-being as well as the Malay’s philosophy of this dynamic movement. This evidence prove that this dynamic exercise reveals the sacred essence of movement that lead to holistic positive effect on the spiritual side that prone to provide the maintain inner peace and patience in the individual.



(a) The unseen sacred pattern (b) Alphabetical of “Lam Alif”  
**Fig. 14.** The analogy unseen pattern that similar pattern to alphabetical of “Lam Alif”

#### 4. Conclusion

The integration of local wisdom with the cutting edge of technology has brought forth profound revelation within the intricate tapestry of culture practises and physical exercises. This research embarks on a fascinating journey, exploring the graceful movement of “*Selangkah Guru*” within the “*Senaman Tua*” through the lens of motion capture Technology (MoCap). The aim is to unravel a concealed alphabetical pattern, with a particular focus on a scared alphabet of “Lam Alif” that



believed to hold the key of achieving delicate balance spiritual and physical well-being within the practice of “Senaman Tua”.

As we delve into the findings, it become evident that MoCap serves as a transformative tool, allowing for tangible visualization of the profound connection between the spiritual and the physical. “Lam alif” emerges as more than just an alphabetical sequence; it symbolized the intricate symbiosis within the traditional practice, a balance that is essential for overall well-being. The study not only reaffirms the enduring influences of Islamic philosophy deeply embedded in Malay culture over centuries but also paves the way for broader insights.

Beyond the confines of cultural specificity, Motion Capture Technology emerges as a universal decoder, transcending boundaries and offering the potential to unveil visual pattern in movements and exercises across diverse cultural landscapes. The intersection of tradition and technology not only deepen our understanding of the intricate relationships within “Senaman Tua” but also open new avenue for appreciating the universality of certain principles embedded in the rich tapestry of human movement and cultural practises.

In conclusion, the research findings underscore the transformative power of Motion Capture Technology in decoding the subtle intricacies within “Senaman Tua”. The revelation of the sacred alphabetical pattern, particularly “Lam Alif” goes beyond a mere visually display: it unravels the secret behind achieving a harmonious balance between spiritual and physical well-being. This tangible evidence not only validates the enduring influences of Islamic philosophy within Malay culture but also highlight the potential of Motion Capture Technology to reveal visual pattern in movements across diverse culture landscapes. The marriage of tradition and technology showcased in this study provides a unique perspective, enriching our understanding of the interconnection of human movement and cultural practices.

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