JUNIOR FELLOWSHIP GRANT SCHEME FINANCIAL YEAR 2013-14

The Geometric Analysis with a Chronological Order for the basic movements and footwork used in Kathak



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FINAL PROJECT REPORT

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Name of the Project :-THE GEOMETRIC ANALYSIS WITH A CHRONOLOGICAL ORDER FOR THE BASIC MOVEMENTS AND FOOT WORK USED IN KATHAK.

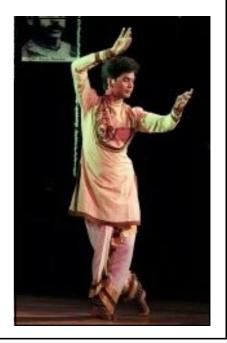
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"Aangikam Bhuvanam yasya Vaachikam Sarva Vaangmayam Ahaaryam Chandra Taraadii Thamnuma Saatwikam Shivam"

Preface

According to the sloka of **"Abhinay Darpan"** Aangik comes first in any dance form. Kathak means story teller. So Vachika (story telling)came first and became more important than Angik .

Angik wise kathak is more open in structure.So, very often the dance movement differ from one to another. Thus an attempt has been made to bring a uniformity in the dance form in basic level through the graphical geometric analysis of movements and footwork used in kathak.

Macro images are the amalgamation of micro dots. The dancers create the living images in the space around them by using their limbs. When a dancer stands on the floor ,his or her central bodyline can be denoted by the **'Y' axis** and extension of both the arms can be denoted by **'X' axis**. Hence all other postures and movements can be explained with reference to this.

If the movements and footwork can be explained with geometric analysis, the students of modern age can relate it to their academic knowledge and become conscious and confident of co-ordinating their body and mind obtained through practicing dance vigrously. This can help them in their whole career and to become an anatomically understanding person.

Object of my research on this project is to provide with profound techniques and comprehensive explanations to all essential topics of Kathak Dance, the basic as well as advanced dance movements for the fourth comeing dancers. This project includes illustrations with numerous examples and figures which are specified to be suitable for Kathak students of all levels. This project contains series of educational modules designed to provide information about Kathak movements with self-study format. To explain movements in these modules, I have taken the help of geometrical graphs to explain movements. This project will reveal the interplay between Mathematics and Dance. Geometry is the most apparent subfield of Mathematics that is referred to our subject of dance. We can consider the shapes, patterns and angles of Geometry to find out similarities with different postures of Kathak dance. We shall focus on the lines of the dancer's body and the relationship of these lines with the space in which the dancer is creating movements. With these collective movements and the way it changes with the music, an ensemble will be created with Dance and Music by using geometrical patterns. In other words, Geometric analysis will be the primary mode of explanation of Kathak Angik.

I got the inspiration for this work from Kathak Guru Padmavibhushan Pandit Birju Maharaj Ji and Guru Kumudini Lakhia Ji. They encouraged me a lot to do this research work and they agreed that this research and Geometrical analysis must be documented to enrich the Kathak repertoire, as this type of concept has never been cataloged before.

Beside continuous discussion with my Guru Smt. Sreelekha Mukherjee, I interviewed many Kathak exponents and scholars like Pt. Birju Maharaj, Guru Rani Karnaji, Guru Saswati Senji, Guru Dr. Malabika Mitra, Guru Prerana Shrimali, Pt. Vijai Shankar, Guru Naliniji & Kamaliniji, Prof. Amita Dutta, Prof. Vidhi Nagar, Pandit Rajendra Ganganiji, Smt. Sujata Banerjee, Guru Malti Shyam, Guru Gouri Sharma Tripathi, Smt. Laily Basu, Smt. Dipti Gupta so on, regarding this project and everybody supported this idea immensely and they informed me about their techniques of teaching Kathak. I have taken their valuable opinions and presented in this project.

I also visited many programmes, Workshops, Seminers in India and abroad to get the inputs by having interviews of diffrents dancers, students and scholars, for this project. My research is going on. As a dancer, with all my performances in India and abroad, workshops and teaching, I am pursuing to cover this vast area of Kathak techniques and methods. I hope to conduct my research in detail, covering more areas so that new avenues of Kathak will be opened for tomorrow.

My main subject of this work is based on Pandit Birju Maharaji's book *AngKavya*, He mentioned all the names of kathak movements and I am explaining most of the basic movements geometrically so that all learners will be able to understand and follow the technique that Maharajji has introduced in the field of Kathak. In preparation of this project, it has always been my aim to avoid complicated explanations and phrases as far as possible.

Many Kathak Gurus like Srimati Rani Karnaji, Dr. Malavika Mitraji, Guru Prerna Srimaliji have used Geometrical analysis in their teaching. During the interviews with them, they have given examples of space and angles during their teaching, but all these techniques were not documented anywhere so far.

Contents _____

1.	Initiation	••••	••••	13
2.	Methodology	••••	••••	17
3.	Basic Kathak Movements	••••	••••	29
4.	Feet Position	••••	••••	51
5.	Justification	••••	••••	54
6.	Practical Application and Implementation	••••	••••	56
7.	Acknowledgement	••••	••••	61
8.	Reference	••••	••••	66
9.	Bibliography	••••	••••	76
10.	Resources from Internet Links	••••	••••	77
11.	Feedback	••••	••••	78

Initiation





Basics of dance.



Story telling



A



Open in structure

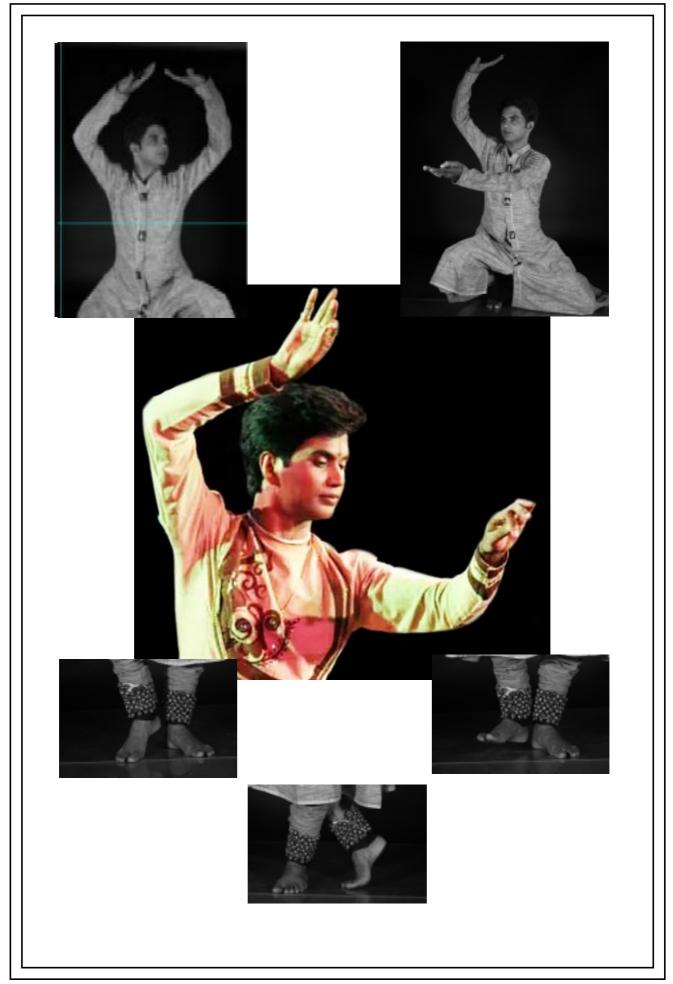
Realising through graphical and geometrical analysis of movements

"Aangikam Bhuvanam yasya Vaachikam Sarva Vaangmayam Ahaaryam Chandra Taraadii Thamnuma Saatvikam Shivam"

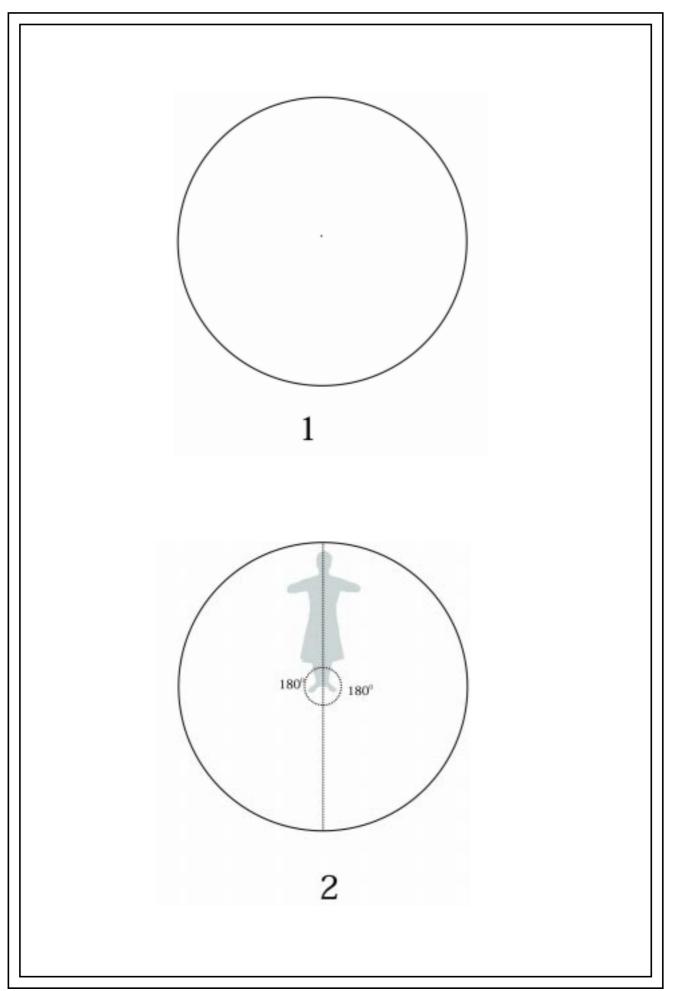
From this sloka we get to know that **Angik** comes first in any form of Indian Dance, so angik is the basic of a dance. Kathak means the story telling. In this dance form, Vachik was more important than the Angik, and as a result the form doesn't have an uniformity in Angik, where as in other Indian Classical dance forms we can see the uniformity instead of having different styles in different Gurus and Performers.

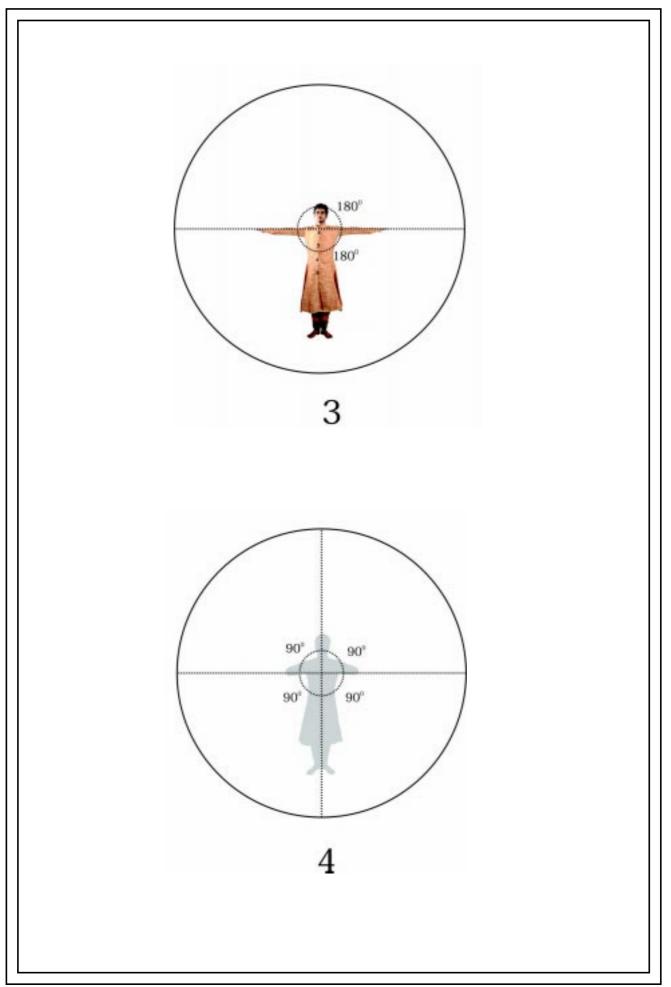
Learning Kathak from a dedicated Guru Smt. Sreelekha Mukherjee, since my childhood and there after getting associated with many Gurus and dancers ,I noticed there is a big difference between one another, especially with the students of different Gurus.

Teaching came in my life before the start of my professional career as a Kathak dancer, as I started teaching while I was learning from my Guru as well as from other Gurus, sometimes by attending different workshops by legendary kathak maestro Padmabibhusan Pt. Birju Maharaj, Pt Chitraesh Das, Pt. Ram Mohan Maharaj,Guru Bela Arnab,Guru Bandana Sen, Pt. Vijay Shankar,Smt Saswati Sen, all kathak luminaries ,I started changing my style by realizing the movements after Graphical analysis.



Methodology





Lines



Macro images : micro dots

Body vs bodyline

- Line vs line figure
- Bodies are not static
 Continuously changing.
 - Proper posture, balance : Proper bodyline

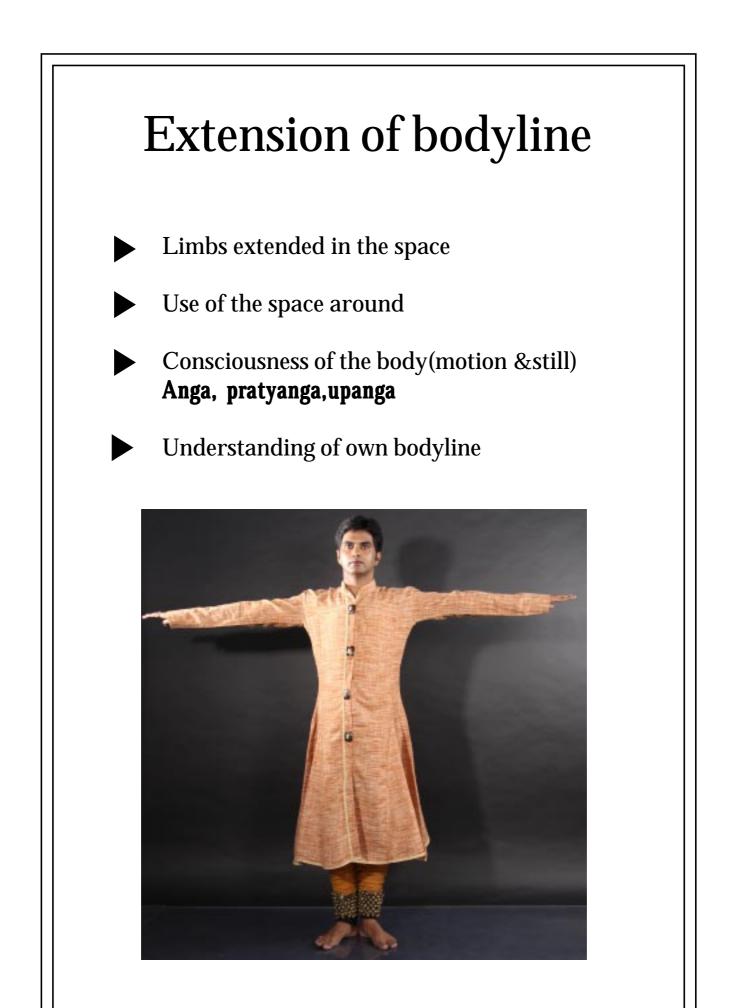


What are lines?

As all macro images are the amalgamation of micro dots, to make a line we need at least two dots for a straight line and more than two dots for a curved line. With the different lines we create different images.

As dance is a living picture in the space where dancer's body lines create that moving picture, dancing lines are created by dancer's body and movements. Though the dancing postures seem to be static, but in reality they are not because dancers are living beings and hence they can never be static. Thus lines are not static, they always change, either they are extending or shortening.

Engineers and Architects sketch the outlines of a construction or the appearance of structures whether for machinery or a building. Similarly the dancer's basic bodyline with proper graphical measurement will be able to create a perfect dancing image. These images continuously change as the body moves from one image to another, even if the dancer is not moving from one place to another i.e., without changing the body axis.



How can a Kathak dancer enhance their body lines?

Dancers create lines by using their limbs. As Pt. Birju Maharaj ji explains, " space is the canvas and limbs are like pencils or brushes where our expressions or emotions are the colours." Coming to the bodyline –the dancer's lines are the way in which their bodies are extended through the space in which they are dancing.

Dancers should be aware of their bodies when they are on the dance floor whenever in motion or in static position .Dancers can extend their body lines in different ways such as by extending their limbs, the neck, lowering the shoulders .Dancers should know their individual bodyline and depending on the movements they should use their body angles to extend or shorten their posture.



1



Keep the perfection of posture intact

- 1) Dancers should never slouch
- 2) Maintain proper body angle
- 3) Energy till the finger tips

3



Keeping the Posture Intact While Extending the Lines

Even during periods of stillness, dancers should never slouch. If the shoulders pull forward, the chest caves in to the body, and the hips tuck under, a dancer will seem shorter than he or she actually is. Instead, dancers should continuously think about lengthening the spine - pressing the body into the floor while simultaneously lifting to the ceiling. Practicing this posture in the mirror can help dancers to achieve perfect lines on their own.



Shape

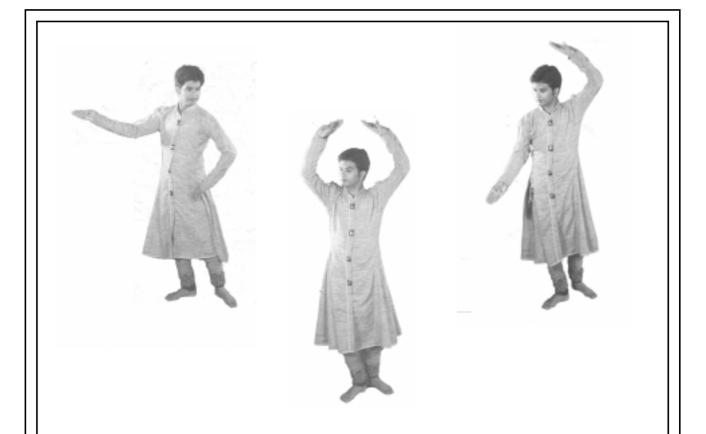


Strongest visual component in dance

Straight and angle

1 water

- Base and curvature
- Open and close
- Symmetrical and asymmetrical (still & motion)
 - Centred and off centred



Shape

Shape is an aspect of the element of space. Shape is perhaps the strongest visual component in dance. The term shape may refer to individual body shapes (the way in which 3-dimensional space is used by the body) and group shapes. Body shapes are present in all actions in dance. Shapes in dance convey meaning.



Basic Kathak Movements

If we consider Kathak as a language, we need to know all the alphabets of Kathak to make sentences. In all languages alphabets are nothing but combinations of curved and straight lines. To form a straight line we need to have at least 2 points and more than two points for a curved lines. In Kathak, these points are Bols, so we need at least 2 bols to create line or movements. There are few exceptions, in some special cases where we create movements with only one Bol for example, to show SUM.

Chronology of kathak bols / Barna Kalas.

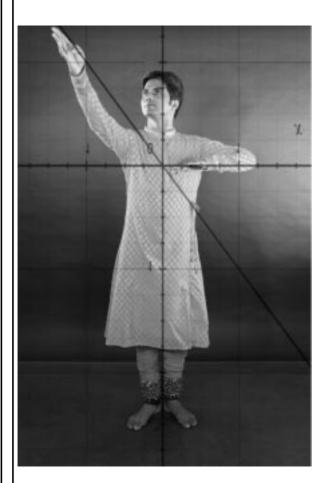
For exampals if we start with 2,3,4 ... syllables or bols

Two Bols (syllables) : Ta Thei
 Three Bols (syllables) : Tat Tat Thei
 Four Bols (syllables) : Ta TheiThei Tat
 Five Bols (syllables) : Tig Dha Dig DigThei OR Ta Thei Ta TaThei



Hand Movements with Two Bols :

" Ta Thei" and "Aa Thei"



Urdhva Kona Suchita : Extend Right arm at 45 degree angle at upper right corner at "Ta" (above shoulder level – as per picture) then bring the hand back to Origin (Utpatti) at " Thei". Same movements will be done with left hand, extend at "Aa" and bring it back on "Thei".

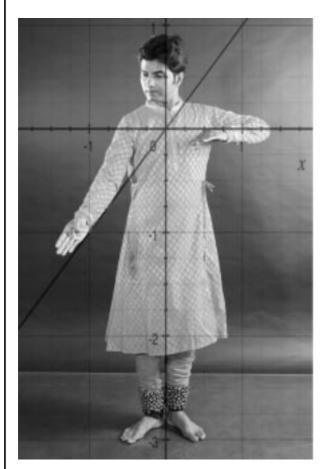


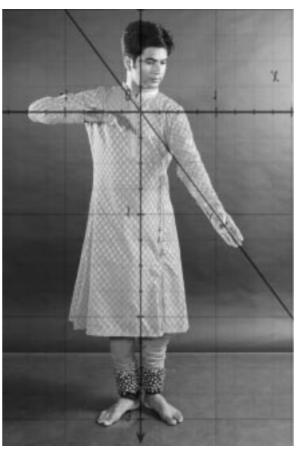
Madhya Kona Suchita : Extend Right arm at 45 degree angle front corner (shoulder level – as per picture) on "Ta" and then bring it back to Utpatti on "Thei". Repeat the same with Left hand on left side on extend on "Aa" and bring it back on "Thei".



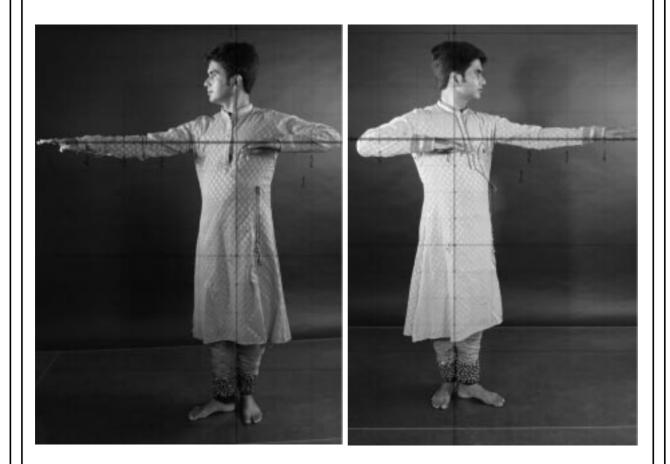


Tala Kona Suchita : Extend Right arm at 45 degree angle front down corner (below shoulder level – as per picture) on "Ta" and then bring it back to Utpattion "Thei". Repeat the same with Left hand on left side on extend on "Aa" and bring it back on "Thei".





Samatal : Extend Right arm at right side (shoulder level – as per picture) on "Ta" and then bring it back to Utpatti on "Thei". Repeat the same with Left hand on left side on extend on "Aa" and bring it back on "Thei".



For all 4 hand movements above, when you extend hands, make sure the front side of your wrist lead the path that your hands are following and after reaching to the highest point your palm will open to that direction and then pull your hand back so that the back of your wrist can lead (As per picture).



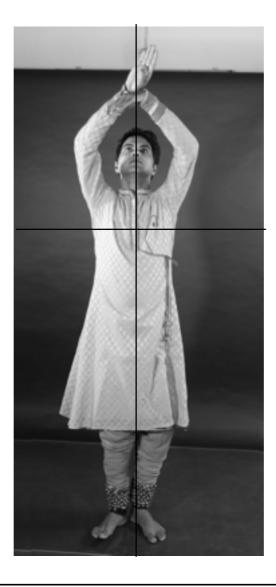
Hand Movements with Three Bols : " Tat Tat Thei"

1. **Pushpak** : Both the hands will be up following central bodyline above the head, left palm will be down and right palm will be up then both palm will be turned from wrists, left palm will be turned from outside (Away from your body) and right palm will be turned from inside (towards your body).

On first "Tat" position your right wrist on top of your left wrist and then on second "Tat" turn both wrists and bring it back at Upatti on "Thei".

Footwork will be Right (Tat), Left (Tat), Right (Thei)

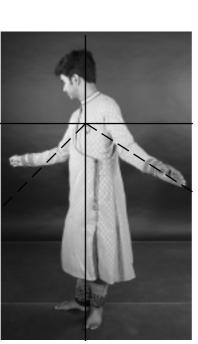
Same Pushpak hand movement is used for "Kran" but the footwork will be different.



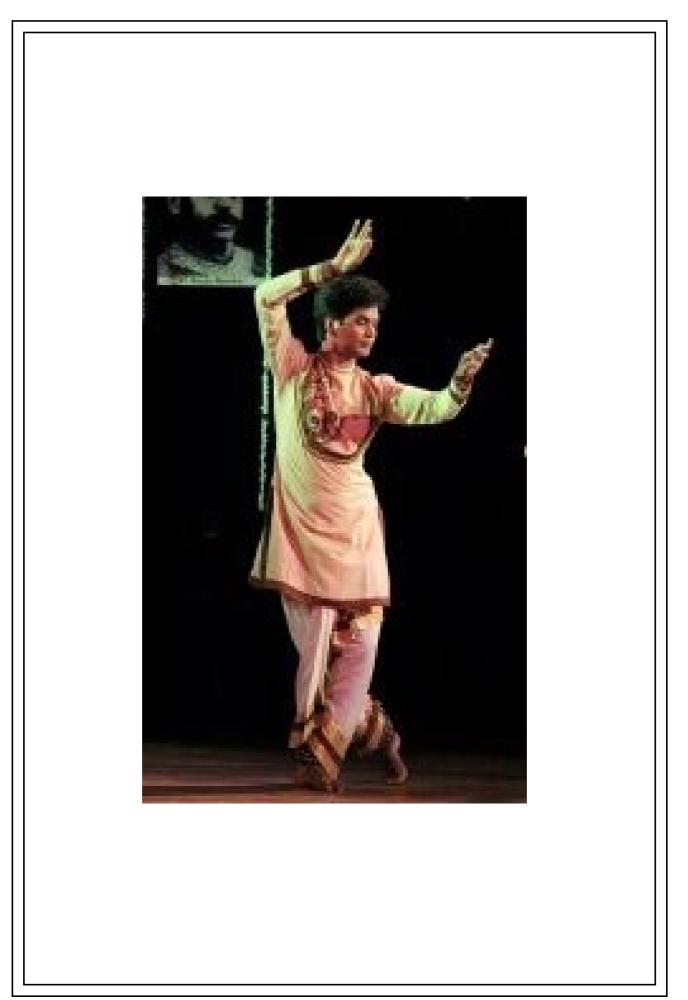
2. Both hands will down in 45 degree angle at first "Tat", right hand will be pointed towards back 45 degree angle and left hand will point at front 45 degree angle and Torso will be turned little bit towards right side. On second "Tat" Hands will be coming up (Wrists will come up first) and both Arms will be coming back to Utpatti at "Thei" and torso will be straight again. So both Arms will form a half circle and come back to Utpatti position. Hands will move like wings of butterflies (as per picture).

Footwork will be Right (Tat) , Left (Tat), Right (Thei)





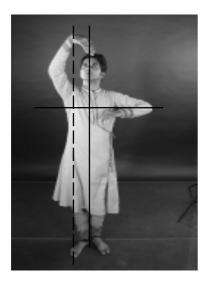




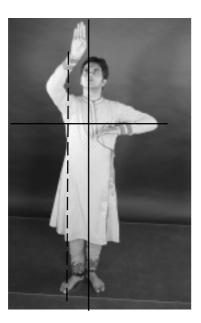
Hand Movements with Four Bols : " Ta Thei Thei Tat , Aa Thei Thei Tat" Footwork will be (Taatkar footwork) Right Left Right Left / Left Right Left Right

Urdhva Hasta Chakra

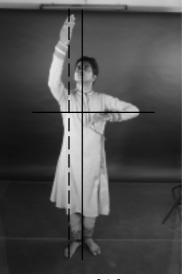




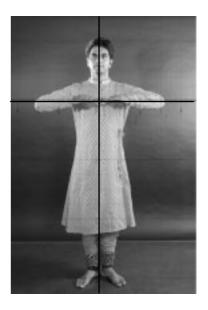
[1]



[3]



[2]

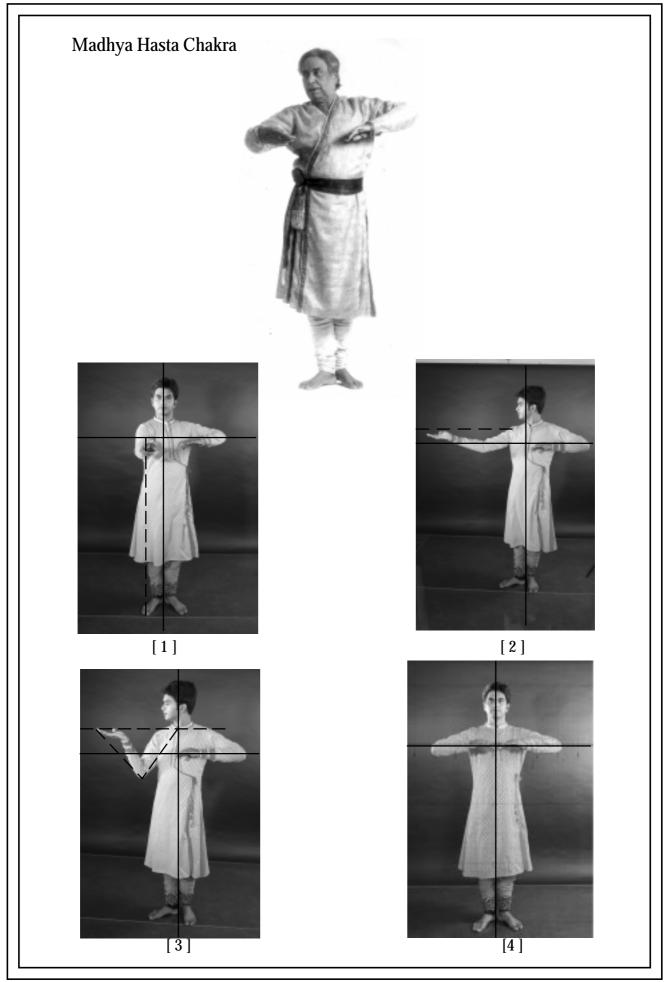


[4]

Urdhva Hasta Chakra:

Raise your right hand up (palm facing down) from Utpatti along with central body line (parallel to Y axis) on "Ta" (pic-1) then straighten right palm on "Thei" (pic-2) and then rotate outside from left to right on second "Thei" (pic-3) and bring it back at Utpatti on "Tat" (pic-4). So one hand will travel with 4 bols (Ta Thei Thei Tat) and footwork will be Right (Ta) Left (Thei) Right (Thei) Left (Tat).

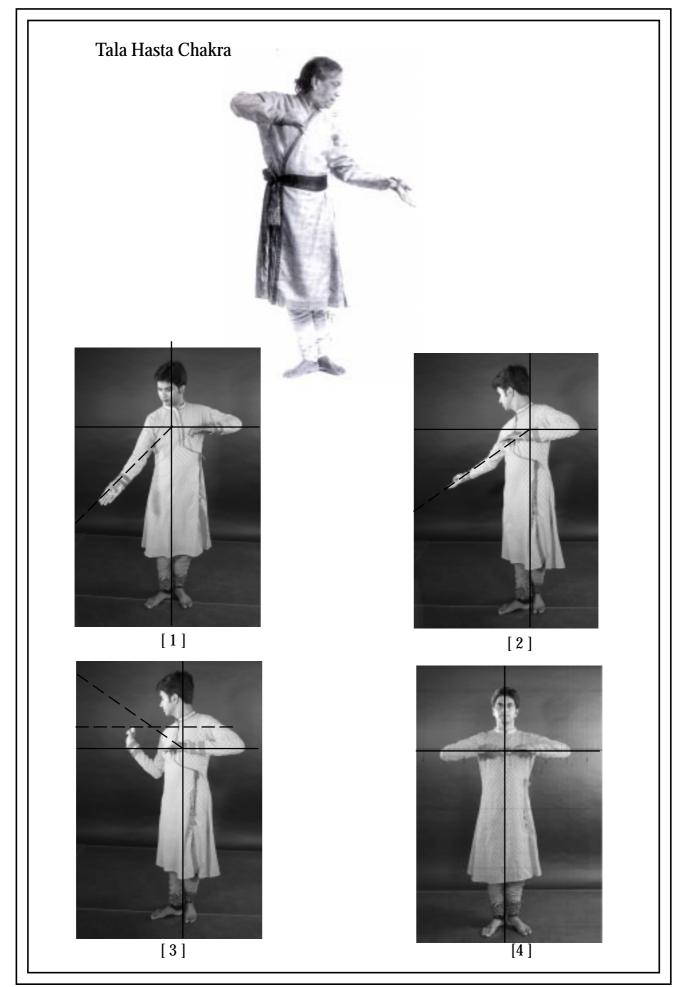
Then perform the same action on Left side, Raise your left hand up (palm facing down) from Utpatti along with central body line (parallel to Y axis) on "Ta" then straighten right palm on "Thei" and then rotate outside from right to left on second "Thei" and bring it back at Utpatti on "Tat". So one hand will travel with 4 bols (Ta Thei Thei Tat) and footwork will be Left (Aa) Right (Thei) Left (Thei) Right (Tat).



Madhya Hasta Chakra :

Raise your Right hand (palm facing up) front at your shoulder level from Utpatti making a 90 degree angle with Y axis (your central body line) on "Ta" (pic-1), then rotate right hand on right side to make it parallel to X axis on "Thei" (pic-2) and then pull your right hand back along the X axis using your wrist line (back of your wrist will show the path) on second "Thei" (pic-3) and drop your right palm at Utpatti on "Tat" (pic-4). So one hand will travel with 4 bols (Ta Thei Thei Tat) and footwork will be Right (Ta) Left (Thei) Right (Thei) Left (Tat).

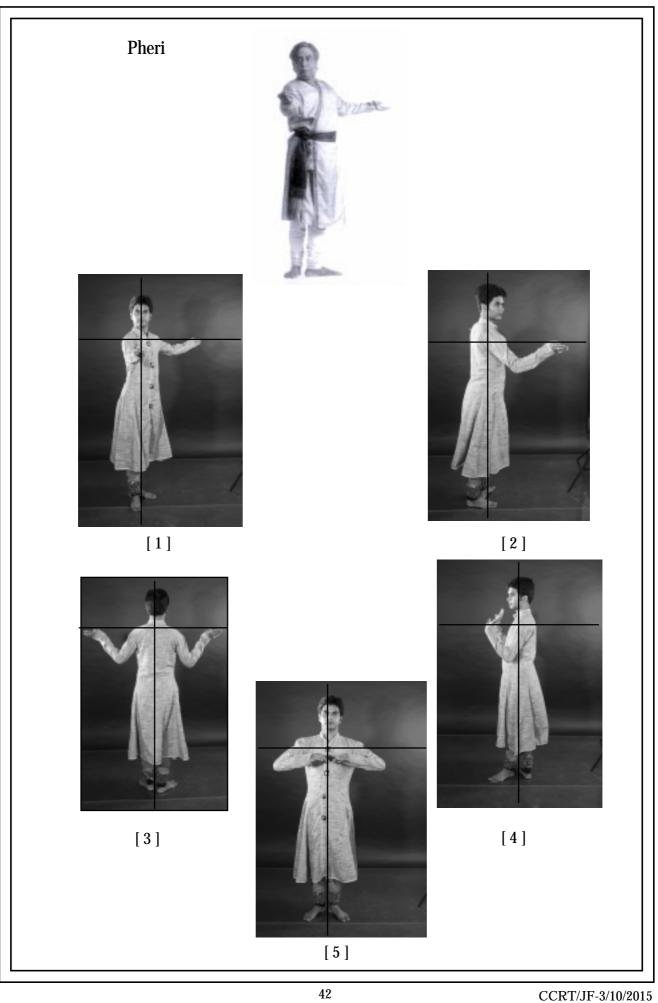
Repeat the same action on Left side. Raise your Left hand (palm facing up) front at your shoulder level from Utpatti making a 90 degree angle with Y axis (your central body line) on "Ta" then rotate Left hand on Left side to make it parallel to X axis on "Thei " and then pull your Left hand back along the X axis using your wrist line (back of your wrist will show the path) on second "Thei" and drop your Left palm at Utpatti on "Tat". So one hand will travel with 4 bols (Ta Thei Thei Tat) and footwork will be Left (Aa) Right (Thei) Left (Thei) Right (Tat).

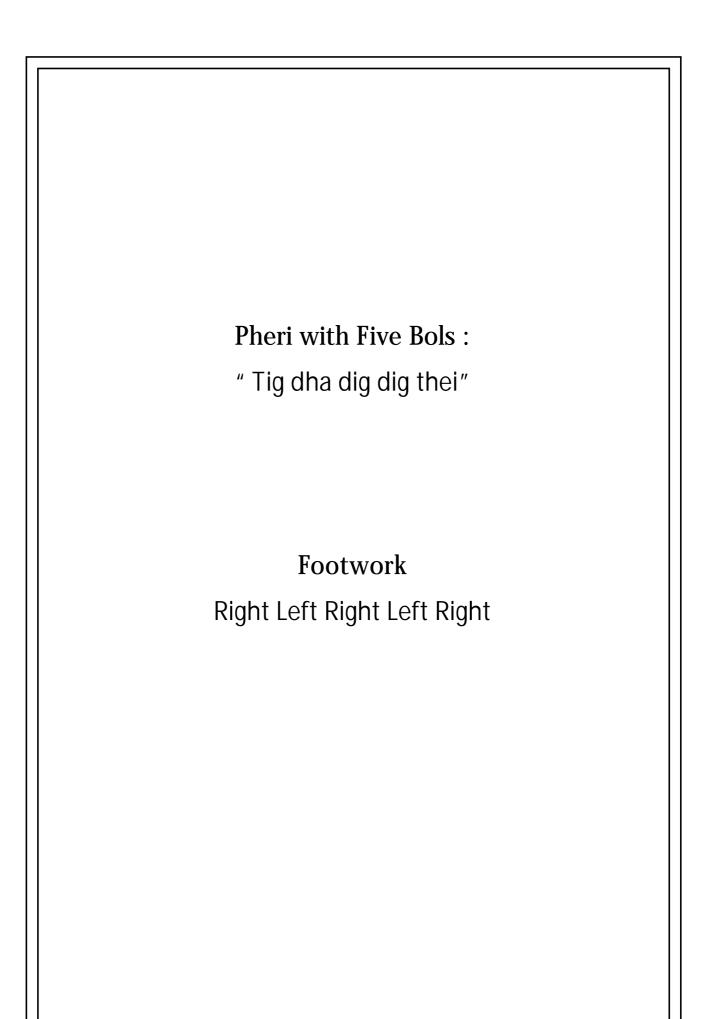


Tala Hasta Chakra :

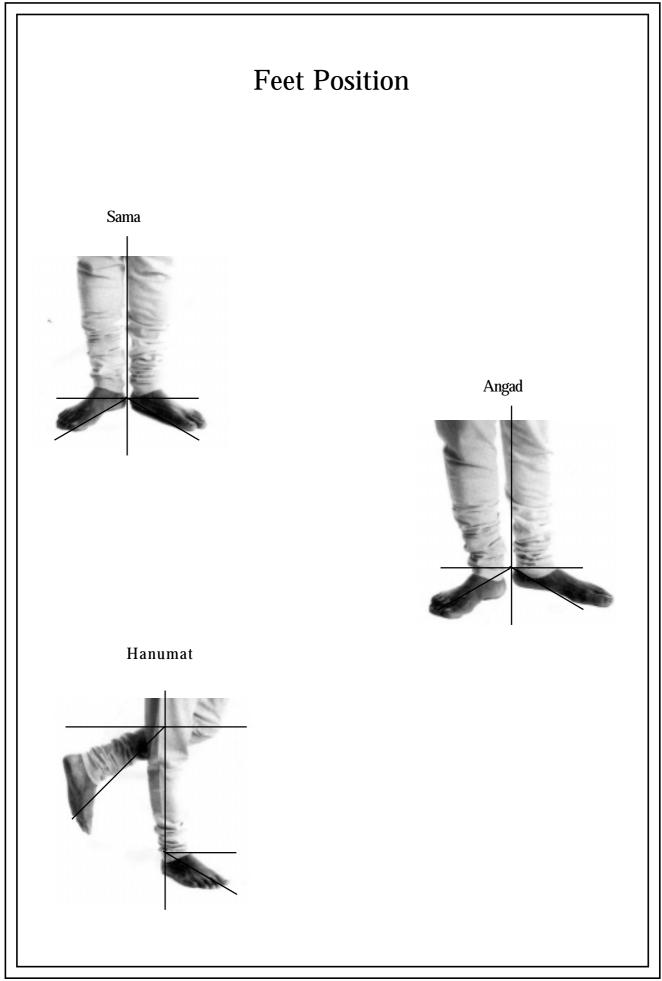
Extend your right hand (palm facing up) front down corner (Talakonsuchita) preferably at 45 degree angle on "Ta" (pic-1), then take right hand back down corner (as per picture) on "Thei" (pic-2) then bring the back of your wrist up on second "Thei" (pic-3) and bring the right palm at Utpatti on "Tat" (pic-4). Footwork will be Right (Ta) Left (Thei) Right (Thei) Left (Tat).

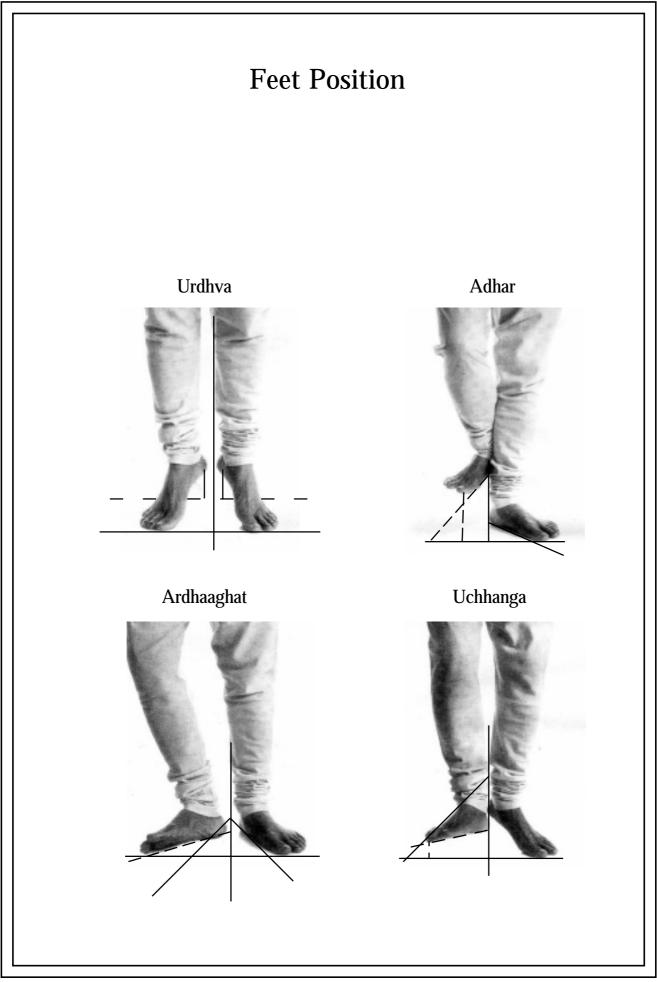
Repeat the same action on Left side. Extend your Left hand (palm facing up) front down corner (Talakonsuchita) preferably at 45 degree angle on "Ta" then take Left hand back down corner (as per picture) on "Thei" then bring the back of your wrist up on second "Thei" and bring the Left palm at Utpatti on "Tat". Footwork will be Left (Aa) Right (Thei) Left (Thei) Right (Tat).





Feet Position





Justification

- Practice differs from learning
- Guru Sishya Parampara through Institutional training
- Scientific teaching module
- Building up of strong foundation
- Coping up with Academic pressure
- Less time for dance
- Education in dance <--> Dance in education i.e. integration of dance & education.
- Line graphs : bodyline
- Numerical numbers : Rhythmic bols (beats)
- Developing confidence
- Extension of the area of research work

Pt.Birju Maharaj ji has become the constant inspiration and source of the analysis of movements.Maharaj ji's Book "Ang Kavya" inspired me to do this work.

As I have teaching experience since my student life,I started collecting both the experience of a teacher and a student.

By analyzing the scientific explanation of line and movements, I have tried to incorporate the chronological analysis of kathak movements by attending different Gurus and Institutions all over the country.

Most of the time the dance students don't understand their body lines as in India we don't have mirror in the dance classes. So, what they learn from the teacher, differs from their practice at home.

In the past, during the time of **Guru-Sishya Parampara**, the students used to live with the Guru at his house and they were monitored while they were practicing, but now the system has changed. Dance is taught in institutions or in a group may be once or twice a week for one to two hours .So I believe that the teaching procedure needs to be more precise and scientific, especially at the basic level, so that once the foundation of the students are well built and strong and their concepts are clear, they can easily adapt to the advanced training of the great Gurus or institutions.

With the changing times, we need to develop our teaching module for this art form for the modern generation so that they don't lose their interest in such a globally well accepted dance form.My work will help the students who have very less time for practicing dance, due to academic pressure and exams, but still want to learn Kathak. Once they know the basic geometry of space and their body lines and footwork, they will be able to learn faster and will have good body lines. As a result, their dance will be appreciated and they will gain confidence which will not only help them as a dancer but also as a human being.



Practical Application

- Students will understand better
- Self-learning module- Rectifying themselves
- Method- Global Acceptable
- Basic uniformity (at the initial level)

< languages < Letters < words < sentences < languages <



As of now I am analysing the movements learnt from my Gurus or observed in others' performances .I am in the process of doing continuous research for this project while learning, practicing, teaching, choreographing and even watching others perform.

Every time I find new lines and graphical representations of postures and movements.I am getting very good results while applying these methods on my students as they are improving very fast and are being acknowledged by the experts or other Gurus (in Doordarshan gradation, CCRT, Junior NATIONAL SCHOLARSHIP

, Rabindra Bharati University Examination and other prestigious competitions) not only in India but also in UK, USA, CANADA, BANGLADESH and other European countries. So the dancers and teachers globally are being benefitted by following this method by attending my workshop or classes. I attended the classes of other Gurus or institutions like Kathak Kendra, Kalashram, Kadam



Ahmadabad, Banaras Hindu University and also in some institutions in Pune, Mumbai, New York, New Jersy, London, Toronto etc. to watch the basic kathak movements practiced by them.

This fellowship has helped me to extend my research areas. This will help Kathak Dancers also to have a basic uniformity like all other classical forms .Our Government 's money will be used for a wider vision not only for the Kathak Students in India but around the Globe.

Implementation



Workshop at Singtam, Sikim







Workshop in Nadia District, West Bengal





Last date of admission : 1st June 2017

Form along with rules Rs. 20/- available from 1st floor room no 7



Acknowledgement





 Pt. Birju Maharajji



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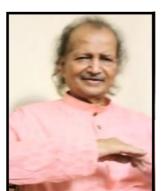
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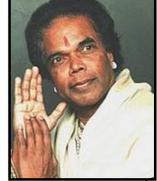
Resource Persons



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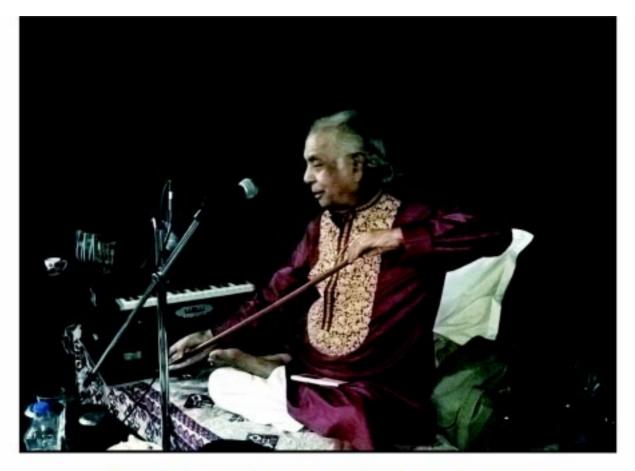
Pt. Satya Narayana Charka ji

Proiiiiiiiiii uiii Pti Krishna Mohan Maharaj-ji



iiii i5j8iii ioseiii

Reference



Pt. Birju Maharajji is explaining line



Smt. Saswati Sen at Kolkata Workshop

Prof. Amita Dutta at Rabindrabharati University







Interview with Padmashree Smt. Rani Karnaa

UUIVIIJI UIIUIAUIU



Interview with Malti Shyam at Kathak Kendra, New Delhi





Interview with Pt. Rajendra Pramanik at Kathak Kendra New Delhi







Pt. Birju Maharajji's Workshop at SNA, New Delhi







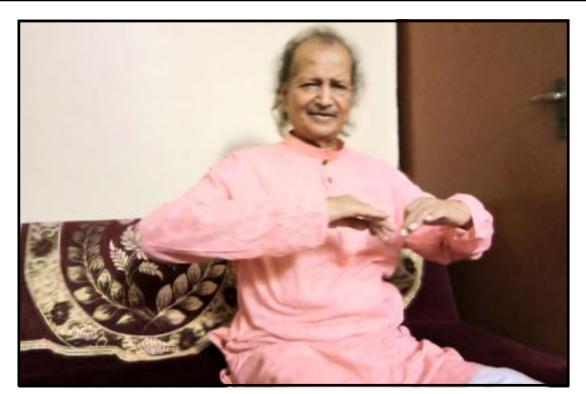
SEMINAR AT LUCKNOW





WORKSHOP BY SMT. NALINI JI & SMT. KAMALINIJI





INTERVIEW WITH PT. VIJAI SHANKAR JI



INTERVIEW WITH SMT. VIDHI NAGAR JI OF BHU



With Janaki Patrik, New York



With Parul Gupta, Toronto

With Jonathan Hollander

Janaki Patrik

New york



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Feedback

Sandip Mallick <sandipmallickkathak@gmail.com> To:somnath_bisu 27 Mar at 9:14 PM

------ Forwarded message ------From: Dutta, Dipannita (NIH/NCATS) [C] <dipannita.dutta@nih.gov> Date: Wed, Jun 20, 2018, 11:20 PM Subject: Recommendation letter for Sandip To: sandipmallickkathak@gmail.com <sandipmallickkathak@gmail.com>

TO WHOM IT MAY CONCERN,

It is my pleasure to work with Sandip closely and get Kathak talim from him in Washington, DC. He is an eminent Kathak dancer and a wonderful Guru. I came to know Sandip Mallick on his Journey to Washington, DC for a Kathak program. I took Kathak Talim as a child in India and later discontinued to pursue my scientific career. My passion for dance remained in my soul and always wanted to continue Kathak in future. It was a great opportunity to meet Sandip and attend his workshops and dance with him on the same stage. I attended two kathak workshops of Sandip and I am greatful to him for giving us a wonderful learning experience. His techniques of using mathematical and geometrical dimension to the movements of hand and feet was easy to grasp and made a lot of sense to bring the steps to perfection. He has an amazing technique of connecting dance with the natural surroundings and this makes the whole dance session very interesting. I was surprised to find how he made us dance to the complicated bole of Kathak in 10 minutes. He has a wonderful temperament and style of teaching that makes the student very comfortable and receptive. I never thought earlier how symmetry in kathak form using geometry can help in making the steps perfect and this is very unique. I am very confident that this form of dance with proper explanation and formula can be beneficial to new students and make the learning sessions very meaningful. I myself, being a scientist enjoy and appreciate science behind our actions and am happy to find the right blend of science and art through Sandip's 'geomagnetic Annalise of basic movements and footwork in Kathak'.

I am a Scientist by profession in National Center for Advancing Translation Science, a Federal Government institute of United States. I am a biologist and do research in the field of Translation Science, designing assays to test small molecule compounds for preclinical drug discovery. I earned my PhD degree in Tel-aviv University in Israel in Cell and Developmental Biology and have a Master's degree in Physiology. In my entire career as a Scientist, I published several papers in the field of protein trafficking which leads to innovation of drug delivery in patients. Currently I am working in multiple therapeutic areas contributing to drug discovery in Cancer, Gaucher disease and neuro degenerative diseases. My best wishes to Sandeep for his wonderful work and hope to cross paths in future. Best regards,

Dipannita Dutta, Ph.D Research Scientist Division of Preclinical Innovation NCATS Chemical Genomics Center 9800 Medical Center Drive, bldg. B, Rockville, MD 20850 Phone: 301-827-5726 Sandip Mallick <sandipmallickkathak@gmail.com> To:somnath_bisu 27 Mar at 8:44 AM

------ Forwarded message ------From: Margie Velazquez <margievelazquezdance@gmail.com> Date: Sun, Jun 24, 2018, 7:42 AM Subject: Kathak Geometry and the Concept in Cross Disciplinary Relationships To: <sandipmallickkathak@gmail.com>, Janaki Patrik <janakipatrik@gmail.com>

Pranam to beautiful Guriji's Sandip ji and Janaki ji,

From the moment I took my first Kathak lesson, I fell in love with Kathak, there was no turning back for me, I fell madly in love with the dance form, the subtle movements, the graceful arm formations, the spins, the beautiful abhinaya, so much can be said with such subtle movements, I was in love. My first Kathak lessons I received from Guru Smt. Janaki Patrik ji, when she visited Old San Juan, Puerto Rico, USA to host probably what could be archived in our dance history cultural records as the introduction to Kathak Dance into Puerto Rico, USA. This special dance initiative was patronized by my Kathak didi gurubehen , Smt. Paulette Beauchamp. Old San Juan, Puerto Rico, a historic area, cultural, alive, beautiful. Where I flew kites when I was a little girl, right across from the dance studio where Guruji, gave probably what can be described as the first Kathak Dance Workshop ever held in Old San Juan, Puerto Rico, USA. Imagine standing in one spot and seeing yourself as a five year old flying a kite while gazing to the right and turning my gaze to the left and remembering my first Kathak lesson. All while standing in the same spot. This is Kathak for me. My heart jumps! The same concept of Geometry I could apply even to this moment, 45 degrees to the right and 45 degrees to the left.

I currently have been residing in Los Angeles, California for 25 years, but visit Puerto Rico often because my family lives there, my mother lives there, my grandmother, uncles, cousins. I recently travel much more to Williamsburg, Virginia, where my sister lives, we fly in mom from Old San Juan, to meet there for holidays and visit Puerto Rico less often due to work schedules, most recently.

I was already a Yoga student in Los Angeles and had already been exposed to Bhajans, Kirtans, Mantras, and Yoga Vinyasa, before my Kathak initiation. I had also attended puja rituals in temples and in Yoga retreats while studying Yoga. I traveled to India three times, to the North, to Bombay, to the South. I was ready to decide on which Indian Classical Dance to pursue studies, as a Classical dancer trained in the USA. I started reading about Indian Classical Dances. My last visit to India was to North India, I had traveled to North India. My visit to the South took me to Krishna Mandapam Mahabalipuram in Tamil Nadu, and my visit to the North took me to the Ganga River and to Kabir Chaura, in Varanasi.

I was already familiar with some musical instruments used in the art form already, such as the Tabla, the Bansuri, and Classical Hindustani Music which was introduced to me while participating in the Yoga community. I was very much familiar with Lord Krishna, because during Kirtans I attended prior, a lot of bhajans were sung in group. I learnt about Lord Ganesh, Radha and Krishna, about Yamuna River, Vrindavan, Hanuman, Sita and Ram, and Lord Shiva.

Being a Western dancer, whom started at an early age with Ballet, Modern Dance, and Folk Dances, trained in Ballet/Modern Dance at an early age in Old San Juan at the school of Ana Garcia, graduate of George Balanchine's School of American Ballet, and first Puerto Rican ballerina that danced at the New York City Ballet and its predecessor, Ballet Society, in NYC. The ballet school located in Old San Juan, it is called 'Ballets de San Juan' and it has just recently celebrated its 60th anniversary.

I found that I could relate my learning as a Western Classical Dancer to Kathak Dance, using the general concepts and principles of Geometry, Mathematics, and Physics. The disciplines of Mathematics, Geometry & Physics explained by Guru Shri Sandip Mallick at our workshop, resonated clearly with me, and it linked all that I learnt from the beginning of my dance lessons as an early teenager to now as adult, makes perfect logical and technical sense for a westerner dancer like myself. I immediately thought that any dancer that has taken Classical Dance in the West could easily relate the Cross Disciplinary Concepts of Geometry, Mathematics, and Physics if initiated in Kathak Dance using such concepts as Guruji explained at the workshop.

Mathematics, Geometry and Physics is added by teachers, in my experience as student of Western Classical Dance, this creates a deeper consciousness in movement for me as student and dancer. The body, the bones, the alignment, the mathematics, geometry and physics. At times, some of my teachers could tell from far if one of my vertebrae bones, hip bones, or knee bones, needed alignment, in Ballet Barre warmup and exercises, as I just remember.

The introduction of Geometry, Mathematics and Physics, general concepts for Kathak Dance explained by Guru Sandip Mallick ji, are easy to learn, are easy to remember and apply to the movement. The Cross Disciplinary Relationship is strongly present and clearly defines the basic positions as a Classical Dance Art Form to any dancer from the West in a basic introductory lesson, or beginners lesson for Kathak Dance. The angles, the counts and mathematics, the spinning, the speeds, the foot positions, arm positions, it all relates and makes it more clear to a western classical dancer that Kathak is technically a classical dance art form. Not ignoring the fact that there is a interdisciplinary pedagogy to the art form, for a Western Classical Dancer this could take a few more years but love for the art form and inspiration from a teacher clears all obstacles.

My experience with Kathak Dance is definitely one of Interdisciplinary and Cross-Disciplinary Relationship, because I do not yet speak Hindi, but learnt a lot of Philosophy and Spirituality, Culture, and Ethnology of the Indian Culture first, before selecting a dance style to learn as western classically trained dancer. The concepts of Geometry, Mathematics, and Physics, explained by Guru Sandip Mallick ji were concise and these are not currently so elaborately explained the way he explained them in the Kathak lessons I have taken in the West, it is a innovation and evolutionary concept, in addition to the philosophy, spirituality and musicality of the art form. The concepts of body alignments in geometry principles and concepts used in workshop are concisely clear and comparable to Western Classical Dance geometry, mathematical, and physics general principles and concepts.

My pranams and humbly grateful for the time we all invested in workshop, look forward to our next one.

Sincerely,

Margie Velazquez

Sandip Mallick <sandipmallickkathak@gmail.com> To:somnath_bisu 27 Mar at 8:46 AM

------ Forwarded message ------From: Amrita Paul <amrita.ritu@gmail.com> Date: Wed, Jun 20, 2018, 9:25 PM Subject: Feedback towards Geometric analysis of basic movements and footwork used in Kathak:

To: Sandip Mallick <sandipmallickkathak@gmail.com>

I have learned Kathak in early school days for around 8/9 years starting when I was around age 6. I stopped learning before my board exams. Recently I have seen Sandip Mallick performing live and his techniques enthralled me as it did for the entire audience. I decided to start learning Kathak again from him after a long gap of almost 22 years. The technique used to teach me earlier were completely verbal and difficult to interpret by the students. We were told to look at mirror and practice which is often not feasible in a home environment. The instructions were like, "move your hand up, down little bit" something like this. Sandip Mallick's modern teaching technique is completely different and it make the learning very easy to interpret. He defines the positions with mathematical angles describing the body in special domain. It's easy to understand and learn perfect posture with very basic knowledge of math. Such instructions help to posture self correction during home practice sessions. It worked for me very well and I am very confident for young students who are learning geometry, mathematics will find this technique more interesting as they can relate Kathak with mathematics. This will attract young generation more towards this dance form and help this century old rich dance form to spread and nurture towards bigger population.

Thanks and Regards Amrita Paul

NRITYAANJALI DANCE ACADEMY

Basisha Aahram, Tadong (Daragaon), Sharma Colonoy C/O Saraparali Bidhya Niketan (Vidya Bharati Schoo), Tadong, Genglok East Sokim 737162

Date: 20/06/2018

I Anjali Rai hailing from the northeastern part of India, Sikkim is undertaking my Kathak Indian Classical Dance learning classes under Guru Shri Sandip Mallick of Kolkata since 2013.

His skill of transforming his dance to the amateur rookie on my early classes were easily learnable, his understanding of students level of learning and adequate among of motivation he puts to keep learning vibrant makes his classes unique.

As I have been learning under him I am experiencing the unique techniques, postures, symmetric form of the body movement perhaps the new methodology involve on learning where the body movement, position of hands, legs forms the different types of angles and the combine angle of hand and legs are forming some kind of symmetric.

With his humble nature and extra ordinary skill is what defines Guru Shri Sandip Mallick.



Infusion Dance Studios

June 21st, 2018

Dear Sir/Madam,

I have had the pleasure of learning Kathak dance with Sandip Mallick periodically since 2016. Most recently I invited him to choreograph my production "Kusuma" in Toronto, Canada in November 2017.

His geometric analysis of Kathak has given me a very good understanding of the different symmetries in my body and how to apply them in my Kathak movement. I have been studying Kathak for 10 years now and my greatest challenge has been finding a codification system within the dance form, especially in the absence of a regular Kathak teacher, since I'm based in Canada. I believe the system Sandipji is developing will be extremely useful to Kathak dancers all around the world, and I'm grateful for the work that he is doing in this regard.

I feel very fortunate to learn from Sandipji and hope for many more opportunities to do so.

Sincerely, Parul Gupta Founder & Artistic Director Infusion Dance Studios

RESUME

Name	:	SANDIP MALLICK
Father 's name	:	SANAT KUMAR MALLICK
Date of birth	:	18/12/1974
Address -	:	Sonarpur, Kamrabad, Naskar para, Kolkata 700150
Mobile No	:	9830484389
e-mail	:	sandipmallickkathak@gmail.com
Web site	:	www.sandipmallick.com
Educational Qualifications	:	MA (Dance kathak)1998,B.Com(h) 1996
Language Known	:	Bengali, English & Hindi.
Guru	:	Smt. Sreelekha Mukherjee (since age of four)
Attending workshops	:	Pt. Birju Maharaj ji (regularly since 1991) Pt. Chetresh Das. Pt. Ram Mohan Maharaj. Smt. Saswati Sen.
Talim for a short period	:	Guru Bela Arnab, Guru Bandana Sen, Pt. Vijai Shankar, Kalamandalam Venkitt Under gone talim of rhythm with Pt.Kumar Bose (since 1996)
Professional qualification	:	Sangeet Pravakar. Sangeet Upadhyay (Gold Medal)
Achievements-		
As a student	-	Stood First in kathak competition conducted by west Ben- gal state Music Academy 1996.The Dover lane music con- ference 1998.
		Graded artiste of Doordarshan. Empanelled artiste of ICCR
As a performer		
In India	-	performed as a soloist at Khajuraho Dance Festival an also in the different fastivals organised by Kathak Kendra New Delhi. Lucknow. West Bengal state music academy. The Dover lane. EZCC. Rastriya Kathak sanyastan. SNA. Doordarshan. Kalashram, Pracheen KalaKendra and in all other major cities like Mumbai, Pune, Ahmadabad, Nasik, Patna, Mysore, Hyderabad, Agartala, Chandigarh etc.
		Performed solo with Pt. KUMAR BOSE, Ustad SABIR KHAN, Pt. SUBHANKAR BANERJEE on tabla in Kolkata.

Abroad	-	UK, Germany, Italy, Spain, Czech-Republic, USA, Canada, Singapore, Bangladesh.		
As a trainer	-	Students stood first in State Music academy's Kathak Com- petition. The Dover Lane Music conference.		
		CCRT (two students)		
		National scholars(five)2005-06, 06-07, 09-10, 12-13, 13-14 Doordarshan graded 2 (2015)		
		One ICCR scholar (Bangladesh)stood first with first class in MA from Rabindra Bharati University (2014)		
Associated with	-	Sonarpur NADAM(director)		
		Padatik Dance Centre (trainer)		
		The Heritage School (kathak instructor)		
		Udayan (Mamta Shankar Ballet Troup)		
		Rabindra Bharati University (external examiner)		
Regularly conducts kathak work	shops ii	n India and abroad.		
Got individual production grant from ministry of cultural Government of India for NRITYADARPAN a group kathak choreography.				
Date :		[SANDIP MALLICK]		
Place : Sonarpur, West Bengal				