



¹George Poonkhin Khut: Artist-Producer

*An important feature of reflective practice for me, is having some research questions underpinning your creative practice...there are processes of reflection **in** the work you do but I ultimately, it's reflection **on** action that is really pivotal in terms of deciding the kind of work you want to bring into the world, what you want people to pay attention to. It has to be some form of purposeful action with some intent to bring into the world some way of understanding, relating and experiencing...*

George Poonkhin Khut is an artist who makes bio-sensing interactive and participatory artworks². He completed his studies in fine arts at the University of Tasmania, in 1994, where he studied painting, sculpture, ceramics, video and electronic music. His Doctorate of Creative Arts from the University of Western Sydney, Australia explored the development and evaluation of participant-centred biofeedback-based interactive artworks. He teaches interactive art and design at the University of New South Wales Faculty of Art & Design and pursues his research interests in parallel with projects in health environments³ e.g. The *Heart Library* Project and the *BrightHearts* research project at The Children's Hospital at Westmead Kids Rehab.



Image 1: “Behind Your Eyes, Between Your Ears, alpha-brainwave controlled interactive artwork by George Khut with James P. Brown, David Morris-Oliveros and Trent Brooks, Performance Space 2015. Composite image of three separate screenshots showing video portraits with patterns modulated by changes in alpha brainwave activity.”

Because research is integral to practice, George's process is articulated in terms of questions, goals and outcomes for which a clear method is defined. Always there are questions, from the wider issues about identity and the role of art in culture to the detail of the interaction design in terms of sound quality or visual clarity. He is searching for a deeper understanding into the way we experience and conceptualise our embodiment through art and technology, and ways these interactive artworks can enhance our appreciation of our embodiment and perspective on living. A very interesting outcome of George's experiments in embodied reflective practice is his insight into the advantages of facilitated or guided interactions over simpler forms of

audience engagement with interactive art. He has written about this work in books and journals⁴.

In the interview that follows, George discussed his creative practice and the central role of embodied thinking and how he develops interactive systems to facilitate highly focused audience engagement.

Q: How would you characterise the way you work in practice?

G: It's usually a combination of factors: I am always keeping an eye out for emerging technologies, checking when they come within reach in terms of their affordability and accessibility and thinking about what they might enable in terms of an interactive experience; then there are the deeper longer running preoccupations around the kinds of interactions I am interested in exploring and the different modalities and ways to structure that experience. So, a combination of exploring the emerging conceptual, aesthetic and technological possibilities.

Q: Would you say that looking back at the works over time that there is a sense of continuity?

G: Oh absolutely. Since 2002 my practice has been almost exclusively on body-focussed interaction, but I've also been slowly working away on a new body of work, which of course involves new collaborators and partners.

Q: Are there any particular reasons why you choose to work collaboratively?

G: Most of the projects I work on involve a combination of electronics engineering, computer graphics programming, sound design, and exhibition design. I concentrate mostly on the exhibition design, sound design and sensor data feature extraction and information mapping aspects of each project. But for the other aspects such as programming for data visualisation, and the electronics engineering aspects – I really depend on these partnerships with other specialist - especially for projects like the *BrightHearts* mobile app⁵.

Q: When you are developing works, what could you say about the process?

G: I usually begin some vague, felt-sense of an experience I want to create – some key experiential elements like certain sounds or visual imagery, as well as an overall quality of interaction and experience and usually some specific mode of interaction – such as interacting while lying down or sitting at a table for example. Then it's really about putting on my producer's hat, raising the funds to pay the collaborators I will need to realise the project, and then bringing these people together. But there are always some key images, sounds or body-sensation/orientation that is there at the beginning – that relates to a quality of experience and interaction that I want to realise.

Q: Do you feel that you are the 'master commander' or the facilitator?

G: I prefer 'lead artist' and 'producer and director'. A big part of the working process is meetings with collaborators about the material and methods we are working on – and identifying and making choices as they emerge. There are always many conversations, and negotiations within the constraints of the time available to different people on the team, the code we are working with, the hardware etc. It's never a case of simply having a vision and getting people to build it for you. It's always a conversation between people, and a push and pull process working with the constraints and properties of materials, codes and processes we've chosen to work with.

Q: And are any of these people artists in their own right?

G: Yes. The current developer I've been working with since 2013 – Trent Brooks makes his own interactive artworks but works primarily as an interaction designer and programmer for *Lightwell* – a digital exhibition design firm. Other people I work with have backgrounds in the arts for examples PhD's etc. in interaction design or interactive art – but work mostly on non-artwork related projects for example, telecommunications engineering or web development.

Q: When making a work, do things happen that cause you to change direction?

G: Yes. You'll have this feeling or vision (vision is such a visually biased word!) but at some point, it will sometimes become clear that the reality is quite different and the original concept simply isn't going to work, then you have to re-imagine the interaction concept based around a different way of working with similar ideas but with for example, a different mode of interaction and interface concept.

Q: As you are working through a process and reflection- how does that take place?

G: It begins with the sketching and prototyping, drafting up-scale plans, thinking where everything is going to go and how things fit together, how the different constraints and properties come together to influence the overall form of the work, and you begin to form some sense of the relationship of the parts to the whole.

Q: Have you ever felt you ever have to abandon something completely, just let it go?

G: Yes – but thankfully not very often. Occasionally when I do the prototype, and all these things I never imagined become crystal clear –and you say ‘right – well that looks really awkward! You prototype it to a point where it's got enough bones so you can see how it works in space, and how it works physically, kinaesthetically; then you get the sense that “this just isn't going to fly”.

Q: When you did your training and you did your PhD, did you come across this idea of reflective practice through reading Donald Schön?

G: Not directly via Schön, but his notions of reflection in, and on practice was very much an assumed part of my doctoral supervision. My post-graduate degree was a Doctorate of Creative Arts, with practice-based research at its heart. I think the term ‘research-led creative practice’ could be a more accurate description of the process and methodology. I did have a very clear research question right from the start and each iteration was looking at a different facet of this. I set out trying to be reasonably clear about my expectations and what my goals were for each work – and then you present the completed work, observe people interacting with it, sometimes talk with them, interview them afterwards and then evaluate and reassess. Maybe there's things about the work that I didn't imagine – when you realise ‘Oh right. That's what the work is doing’. These kinds of observations and insights into how the work is experienced can shift your understanding of what that work does through that process of evaluation and reflection.

Q: There's the reflection in action during the making of something and then the reflection on action when you stand back and look at what you have done.. Does that occur in your work?

G: Absolutely. Once I have all the electronics in place, I build an instrument – a collection graphic interfaces that I use to program and experiment with ways that the participant will influence the sound and visual appearance of the work. This is the really rewarding stage in which you begin to try out various mappings and scalings – a process and experience I describe as ‘reaching through’ all the sensors and technology – into the sounds and visuals – and this is very much a reflection-*in-action* process. Is this too loud? Is that too soft? Do I need to bring that up more? Is that too muddy? How do I find more contrast? How do I blend it? It's a very sensuous, and strangely embodied process. Even though I'm still working with a mouse and keyboard – I'm also wearing the sensors – and testing out various breathing patterns, mental states and stress or relaxation reflexes, and trying out different ways in which these mappings extend and transform my experience of these connections between body and mind.

Q: Is it different when you start using the sensors and there is more embodiment involved?

G: With the body focussed interactions I want to draw people's attention inwards, and to frame these very subtle changes in nervous system orientation that can be difficult to notice. To develop the form for these works I have to pay a lot of attention to these changes inside

myself, and then reflect on how the dynamics of the sounds and visuals can reflect this felt experience.

Q: If you think of the reflection as being through the body how does it feel when you are actually engaged in it?

G: The aesthetic is audio-visual but it's connecting to sensations in our body, our breath and autonomic nervous systems – so it is fused in that way. Embodiment is a fundamental fact of our existence. We create the illusion of disembodiment through what we choose to include in our experience. Ultimately there are just different ways of using our body and directing attention.

In most of my work so far – I'm wanting to facilitate an exploration about ways that thinking, experience and attention can influence and supported by the rest of the body, and then also how certain practices that focus attention on body and mind – can provide us with unique and otherwise inaccessible perspectives on what it is to be alive in this world.

Q: Some people feel that when they are in the process of making something where the hands are engaged, that any kind of conscious awareness is an interruption to that process, are you aware of anything like that?

G: I definitely disappear into another 'space' when I'm mapping and tuning the sounds and visuals – suddenly before I know it - five hours have passed! The more self-conscious and analytical ways of thinking take place before and after this period of immersion and 'feeling-through' the technology, back into the body-mind.

Q: Is it more like in meditation like trying to focus through the breath?

G: Yes, and it's also a lot like what happens in craft. I studied wheel-thrown pottery during my undergraduate training; in that moment at the potter's wheel, there is this wonderful process of dialogue with the clay and the wheel. And I think that the programming of these interactions is similar in that sense; when it's going well and you've designed the algorithms to the point where they don't fall down and it becomes an instrument and material that you then enter into a very sensual dialogue with – in this moment of creative exploration and construction.

Q: Can you say something about the impact that watching others use your works or be part of those works has on your thinking about the work?

G: I do find it very rewarding to observe people engaging with my work and then listening to how they make sense of the experience afterwards, either informally when they are talking with me afterwards, or in more formal interview situations. Usually I'm listening for how they connected with different aspects of the work – specific sounds or visuals – and then also those parts they felt they had no influence over.

Q: Do you ever change the work in a particular way?

G: Sometimes yes, when it becomes clear that some aspect of the feedback feels too disconnected when my aim was for something very close-fitting and immediate. But mostly I'm listening as a way to reflect on and reassess my assumptions about what the work is about, in the sense of what it does – and the varieties of experience it tends to provide. People tend to assume that when you do a lot of work with audience research it is like "find out what the audience like" and it's not like that. Nevertheless, there are those times when you discover a lot of people find some particular sound really distressing or annoying when my intention was for to support very different kind of experience.

Q: With all your works do you always do observation of them in situ or have you got to a point now where you don't do that very much?

G: I definitely do find that face-to-face way of working with audiences, much more meaningful in terms of the level of commitment and quality of attention that the audience

bring to it, versus a kind of flippancy that you often get when it's just an iPad in a room, you know – just another 'app', business as usual. Whereas when you engage people in a conversation, when you engage them in an experiment, there's a quality of attention that is so much deeper in terms of a personal engagement and exploration of the concepts and creative possibilities. People usually need another human being there, to bring out this more focussed engagement.

Q: Are you addressing all the senses?

G: This idea of multimodal interaction is very interesting for me, and especially how we can include our sense of body posture, movement and touch. Part of the reason I initiated the 'Thinking through the Body' project⁶ was to try to address the senses of movement and touch as well. I need to raise more money to pursue that side of it more but that is something I am interested in doing more of.

Q: Would you say that your creative life goes on at a similar kind of pace to how it always has or do you have troughs and high points in terms of activity?

G: It is very project based. I mentioned earlier on in this interview the importance of creative technical collaborations with programmers and electronics engineers. The other really important partners are the venue partners. I might develop a project with a particular venue in mind to present or test the work. There needs to be an audience or community to engage with but that is how I see my work as being meaningful in the sense that it goes into a public domain.

Q: Would you say that you have shifted your notion of what makes good interaction in the way you and other people engage with the works over time?

G: Well, on one hand it's made me more appreciative of a lot of traditional art, and on the other it's made me very conscious of just how different an approach is involved in developing an aesthetic around interaction and the agency and lived experience of the people interacting with the work. Ultimately my aim is for the works to facilitate a very intimate moment of insight – so in this sense they can feel very different to a lot of other interactive artworks, and that really has been my ambition since I started this work with biofeedback.

Q: Do you think that the level of engagement with the kind of activity you get from your sort of work is more sustained than other kinds of interactivity?

G: Yes, but I do acknowledge that it's easier to do this when it's all about them (the participating audience members). There's a very primal curiosity involved in these works – a curiosity to find out what's inside us - so to speak. This question of how we can sustain attention is very important, but people need help to get into that space and they need environments that support them to do this. When we talked about how I develop new works, one idea that has been slowly forming for some time now – is how to extend that fascination we have with ourselves and thus curiosity around my body, how to extend that into our situation on Earth. In modern culture, there is an illusion of separation, that we are somehow separate from our larger ecosystems, and the planet as a whole. I am very interested in how you construct an interaction where people feel those connections more vividly and sensually.

Q: What about when things go 'wrong'?

G: It's painful because the wider public have this larger context for how they experience electronic technologies via products and services developed by major global corporations like Microsoft, Apple and Google – but obviously as independent artists we are competing with corporations that have had thousands of hours and giant teams of people working on these projects before they ever get launched. By contrast, as independent artists we are usually scrounging around for more time to test and de-bug, trying to get these things up and working in time for the opening, and keeping them running for the duration of the project. I am always tweaking the work every time I re-stage them, but they do eventually mature at a certain point.

When you make a new work, there are still so many possibilities you haven't explored with the system you have built.

Q: What does the phrase 'reflective practice' mean to you?

G: What I mean by reflective practice is having a research question underpinning your creative practice. And that this question is tied to questions around culture, around identity, around representation and some understanding of the work that art does and how you bring that to your own individual practice with each work you make. So, there is reflection *in* the work you do but I ultimately, it's reflection *on* action that is really the pivotal one in terms of deciding the kind of work you want to bring into the world, what you want people to pay attention to. It has to be some form of purposeful action with some intent to bring into the world some way of understanding, relating and experiencing – even for seemingly 'purposeless' work.

Q. How do you define success in your creative process? in your outcomes?

Success in process is about the quality of action and interaction that I bring to bear on my collaboration, in my studio and with the tools and materials I work with. Ultimately, I'm looking for moments of insight and connection that coalesce through the interactions – a coming together of previously hidden or unconnected aspects of ourselves and the world around us, a way of imagining and experience these connections that can infuse our experience of being alive, with a sense of appreciation and clarity. In terms of the processes needed to support this – the most important thing is to be able to carve out sustained periods of time in the studio – away from all other distractions: the building that happens in the studio – is as much in one's mind and imagination as it is in the things taking shape in front of you (code and audio-visual compositions in my case). Considering the role of medical / neuroscientific research in relation to arts practice, like many other artists I'm interested on how artworks using these theories and instruments – can help us to conceptualise and reflect on the connections we want people to experience – between attention, emotion physiology and the experience-of-embodiment. The experiences we facilitate through our interactive systems – are designed to be experienced with other people – “ways of being and sensing” – as part of the broader set of things we experience together and value as a society and culture.

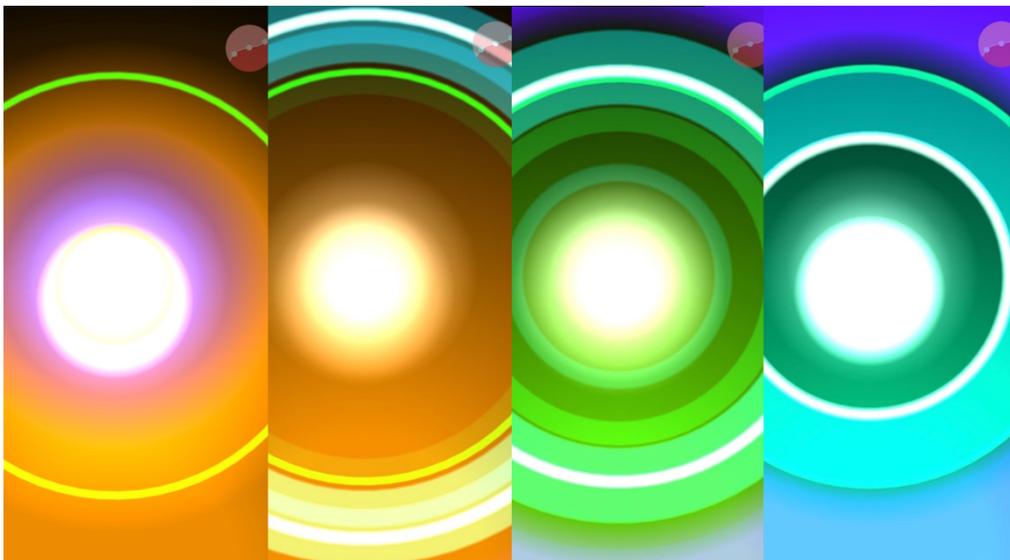


Image 2 : “BrightHearts app for iPhone and iPad, George Khut with Jason McDermott, Trent Brooks and Dr Angie Morrow (2014). Image above: multiple screenshots showing visualisation of changes in heart rate from faster (red) to slowest heart rate (blue).”

Notes

¹ Photograph: Max Doyle, courtesy of The Australian Way magazine

² George P. Khut: www.georgekhut.com/biography/

³ <https://research.unsw.edu.au/people/dr-george-khut/>

⁴ Khut G.P. and Loke L. (2014). Intimate Aesthetics and Facilitated Interaction, in Candy L; Ferguson S (ed.), *Interactive Experience in the Digital Age*, Springer: New York, pp 91-108.

Loke L., Khut G.P. and Kocaballi, A.B. (2012). Bodily experience and imagination: Designing ritual interactions for participatory live-art contexts, in *Proceedings of the Designing Interactive Systems Conference, DIS '12*, pp 779 – 788.

⁵ <http://www.brightheartsapp.co>

⁶ Thinking Through the Body Project: <http://thinkingthroughthebody.net>