Hacking Rambert
Leila Johnston
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My background is in creating satirical and dark work that brings together art, science and technology in entertaining and counter-cultural ways. I have had several humour books published, written for BBC Radio 4 and BBC Comedy, and have spoken regularly at conferences and shows, including two TEDx events.

In 2015 I co-created a sell-out ‘immersive musical’ with expert talks and puppets, and had my first solo installations commissioned for the Brighton Digital Festival and the British Science Festival. I was also selected for a development program for innovators at Future Everything, and was invited to be ‘In Conversation With’ Richard Dawkins at The Lowry in September 2015. I publish a quarterly magazine called Hack Circus about fringe ideas from the tech/science/art worlds. In the face of prevailing digital evangelism, I am an outspoken critic of current technology culture.

In 2012, I completed an experimental technology residency at the Site Gallery in Sheffield. This goal was to bridge the art and digital worlds, and we demonstrated a range of current creative technology work to Site, and connected the gallery with the local technology community.

In 2014, I was in the first cohort of digital residents at Lighthouse Arts in Brighton. I used my residency at Lighthouse to develop Hack Circus, creating an issue of the magazine, producing a series of podcasts and putting on a large sell-out event, in which several of the other residents collaborated with my Hack contributors to create experimental effects with data and 3D printing, live.

I've always enjoyed subverting trends within the tech world, but in this residency I feel I’ve taken on the creative technology movement itself.

finalbullet.com
Sprint: the headlines

Sprint is a digital creative residency programme at Rambert. I applied and was invited to be the programme’s first resident, and spent four months working at Rambert between October 2015 and February 2016.

October
The residency started mid-October. I began collecting audio samples around the building. I also bought a thermal camera and took a lot of pictures of a lot of things. I started the tumblr and recorded thoughts I was having about creative technology and its relationship to the dance world. I tested printing thermal images on acetate transparencies, perspex, several different fabrics and 3D printing. I attended a number of rehearsals, warm-ups, performances and workshops. Outside of Rambert, I spoke to technologists, scientists and artists in my own network.

November
I joined the dancers on some of their tour dates, including Edinburgh and Sadler’s Wells, and took a number of photos and videos with the thermal camera. I interviewed Rambert’s Director of Creative Projects, Joce, and Music Director, Paul, in Edinburgh. I purchased a bright LED display panel, a Raspberry Pi and a Pi camera, and ran imagery from the thermal camera on it. I also filmed the dancers interacting with the screen as a sort of ‘digital mirror’. I experimented with computer vision (shape detection) to trigger effects on the screen. I introduced various technologies to the dancers in the break room, including face recognition on the Pi and basic Arduino effects.

December
I developed some pixel graphics of the repertoire dances and a Christmas ‘card’ on the LED display based on some of this work. I began to think more seriously about the importance of honesty and authenticity in technology and how it can connect practically to contemporary dance. I gave a talk to this effect, at the ‘all company meeting’ just before Christmas. I continued to attend work in progress events and choreography showcases at Rambert. After consulting with Athena, I invited projection specialists onto the site, and began to tentatively roll the ball on a building projection event later in 2016. There was a two week break for Christmas, over which I decided to shelve the perspex printing ideas I’d been considering and focus on the dancers as people. I gave a talk at Birmingham’s “Many & Varied” Christmas event about the residency so far, and put out the December issue of the art/tech/philosophy magazine I publish, Hack Circus!

January
I recorded interviews with the archivist Arike (dual use – it will also go into the Rambert oral history), as well as dancers Miguel and Simone and had many (unrecorded) fascinating discussions with the dancers in their break room. I took my 3D scanner in and demonstrated some effects to the dancers, with a projector, as well as scanning some of them and having them 3D printed as small sculptures. I turned some of these into ice sculptures. I attended both showcases featuring Rambert dancers’ choreography at The Place, and took my scanner to Pierre’s piece ‘Wall’, featuring Daniel, generating some interesting point-cloud video of their rehearsals as a result. I began to organise this publication and the audio I’ve been collecting. I opened an Instagram account for the project.

February
The dancers went off on tour again. I contacted dancer Daniel with the beginnings of an idea for a piece and he responded very well, so we met up in London and Nottingham on our days off, and workshopped some stuff. I also spoke to both Quinta and Nadia about ideas they had separately for making use of the thermal imagery.

I continued to experiment with moulding, 3D printing and scanning and various sensors, with a view to prototyping a sound box for the audio files. I leant Daniel a Kinect to experiment with at home, and he got it working easily and began to send me videos of his ideas.
First Impressions

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As I understand it, Rambert is interested in finding out more about what’s possible and connecting with the digital world in a deeper way than it has before.

“We have been leaders in so many areas,” Rambert’s Chief Executive Nadia told me in the first week. “But we haven’t been a leader in digital. Yet.”

It was also stressed to me from the start that this residency was an experiment and there were no expectations or goals in mind. Nadia told me these kind of non-prescriptive light-touch residencies had worked well for Rambert in the past, and Tim from Rambert and Katy Beale from Caper said, “Even a failed experiment is an interesting one.”

I was commuting from Sheffield for this, and it was always going to be a substantial investment in terms of energy and money, as well as a significant responsibility. It might have been a residency without a pre-defined success criteria from above, but I went into this very motivated to find meaningful success i.e. not just a chance to make something with, for, or about talented people, but the opportunity to offer something of value to Rambert. Initially, I felt that Rambert needed digital creativity far less than vice versa, but opportunities for growth and learning did arise through people (and sometimes tech) as the residency went on and relationships developed.

Ultimately I decided that success, for me, meant making sure Rambert gets something out of me being around.

Culture shock

I was immediately blown away by the cultural differences between this environment and the digital companies where I’ve worked over the years– and the impact of this revelation hasn’t subsided. Learning about the dance community has cemented some feelings I had about the tech world, and as a representative of technology here, that was confronting.

I expect people at Rambert were a bit bemused by how impressed I was with everything, but I want to stress that my response relates to my experiences of technology over the years – its ‘experts’, its attitude to women, its assumptions and working practices. So, in a way, I’m taking any surprise at my reaction as a testament to how well the tech world hides its failings behind a shiny facade, and a sign of how much first class dance takes its own achievements for granted.

At the heart of all this we have the problem that digital culture is writing its own story. No one is more interested in going on about the benefits of digital than digital. Technology is what it says it is, full stop, and there are plenty of people being well-paid to promote it.

“No one is more interested in going on about the benefits of digital than digital.”

Contemporary dance, on the other hand, has few hiding places, few podiums from which to make hollow claims. There is even a sense in which it is what everyone else says it is. However difficult its internal language, there is always an audience in the end, and anyone with money for a ticket can decide its fate and direction.

Dance is accountable and open in a way that creative technology isn’t, yet. I started to see digital is a door-to-door salesperson, and dance as a home that opens its doors to anyone who knocks.
**My offer**

For the first month or two, I thought about the possibility of presenting a ‘finished piece’. But after playing with a number of ideas, I couldn’t work out any way of doing something of quality within the budget and time, without a team or a brief.

But I wanted to offer something to Rambert – something they can only get from me.

As the first digital resident, and their first long-term, embedded, encounter with creative technology, I wanted to show Rambert a broad picture of potential and – in writing this – outline some pitfalls, too. I felt a responsibility to set the tone and show the way.

I was conscious of the danger of becoming chiefly ‘symbolic’ as a resident. I liked the people at Rambert, and I wanted to help them as individuals and as artists.

So I had a think. What’s unique about my stuff? Looking at my practice (as exemplified over the last few years) there are three important things to note:

- In my shows and publications, I promote the value of collaboration – bringing people together to exceed their limits. The whole is greater than the individual.
- I take a highly critical approach to the digital community. I write and speak extensively on many platforms in an effort to question assumptions, and to promote stances which I feel are under-represented.
- Relating to the above, I position my stuff in the real world. I’m not speculating or planning or pitching into an imaginary future. I make things that people need to be people, and here right now to appreciate. I do physical publications and physical shows, sharing space with other humans.

Creative technologists doing coding experiments are two a penny. While I can certainly demonstrate a range of practical ideas that Rambert might get inspired by – and have attempted to do this during my time on-site – what I can offer that’s much more rare is a critical, outsider perspective developed over years of working on the edges of art and technology communities.

As a journalist and hacker, I know a lot about the digital world – what’s been done, what’s possible, how to make things happen. And I have a high barrier for bullshit. I’m the first person with the privilege of this role, and as such, I’d like to be a sort of digital sherpa to Rambert.

**Collaboration**

It was clear from the start that the dancers are extremely busy, and while Katy and Tim reassured me that I should try not to perceive any limits in what I might want to do, I realised early on that meaningful collaboration – in the sense of workshopping performance ideas together – was looking unlikely in the timeframes. I was down in London as often as I could be, but the dancers were away a lot, too. My residency coincided with their autumn and spring tours, meaning they were only in the building consistently for two out of the four months.

The question of collaboration is an important one, though, as the word hasn’t come up often. It implies the two-way help, but without a sense of what Rambert wanted from digital, or from me, it was a challenge to know how we could get the best out of each other.

I eventually realised the dance world is not like technology. It’s not a problem-solving currency. Its doors are open, so of course the door marked ‘residency goal’ would be open, too. Technology is very straightforward in some ways. It is all problems and solutions, flows to follow and criteria to rate its successes and neutralise individual difference. It likes fitting the correct pieces together. Dance, though, is nuanced and personal. It invites you – any you – continually to surprise, to show it something new, something that can be learned from. In this, perhaps surprising way, dance is much more tolerant of the differences between individuals than technology is.

So, collaboration will happen as a result of these four months, but if it’s to have any value, it can’t be forced or rushed. My best projects have been the product of months or years of trust. Four months (35 days on site) is a good timeframe for a team of five to prototype an app for a phone, or a good timeframe for one person to establish the foundations of a lasting relationship with an organisation.

**What obsesses you?**

Nadia told me, “Don’t think of this in terms of any problems to be solved. Just focus on what obsesses you and run with it.”

I looked into a lot of interesting things. Time. The building. Code. Rendering sound. Musicality. Portraits. Heat. I looked at people – especially dancers. How is it possible that most people never get really good at anything, yet other people find themselves here, doing such an extraordinary thing for a living? Just as I’ve tried to show creative tech as achievable, some of the Rambert team have played down the extraordinariness of their work.

But it took me a while to realise that one of my major obsessions throughout all of this is Rambert’s decision to appoint a digital resident! Starting with that, dozens of questions have preoccupied me: what is the relationship between contemporary dance and creative technology? What should it be? What are the delicate issues I must take care not to steamroller during my ‘interventions’?

“Technology is all about matching problems to solutions, fitting the right pieces together as expected. Dance is nuanced and personal. It loves surprise.”
The value of difficulty

One of the admin team told me, “I think if we’ve learned anything from having you here, it’s that we need to have more fun.” And another member of staff jokingly asked me to, “Please bring in new exciting toys every week.”

My work certainly always has a strong emphasis on fun, and I’m proud of that. I think humour and play are key triggers for a certain type of inspiration. But this residency has reminded me, repeatedly, that this isn’t the only way – or even the best. There is value in the long haul – in taking things seriously for a very long length of time – in committing.

So the main thing I’ve taken from this top dance institution is the expectation and embracing of difficulty. At Rambert, challenge is piled upon challenge, as the norm. The dancers are rewarded not with a period of calm coasting, but with further improving challenges.

When I asked one of the dancers what they enjoyed about working with a particular choreographer, he reported that she “kept making it harder – didn’t let me settle.” Everything is training, everything is personal, and there is no conclusion. Nothing is ever finished, closed off or won. And yet at the same time, there is an extraordinary efficiency. Nothing in dance disappears into an anonymous black hole of ‘work’; it is expected that everything that is done and experienced will be used in some way, eventually. It’s a kind of glorious optimism of labour that’s lost to our efficient industrial mindsets.

Technology culture, on the other hand, is in great part committed to making things easier, getting the hard stuff out of the way in an effort to recover ‘free time’. And as long as technology’s legacy habits blur into its art culture, we will find these curious attitudes to work and play, to deserving prioritised above committing, entitlement and earning before audience value.

There is evidence of the quest for an easy life everywhere in tech, from its roots in the service industry, to its current embracing of an amateur technology achievement. ‘The mantra at the moment is that ‘anyone can learn to code’, for example, with the constant nagging subtext that because anyone can, everyone should. Which, of course, also says something about how tech sees its value in the world. It thinks it is the sort of thing that everyone should do, for everyone’s good.

Why would it make such a presumptuous claim? Because it knows it is right. This is capitalism, and technology is in bed with commerce. If it’s money you want, the amounts of money involved prove technology’s value over and over again.

Making technology cultural

But what if everything’s not about money? What’s the value of technology, then? How about the tech that doesn’t do you any good, financially, because it’s not, in some way, selling or serving people?

See, now we’re getting closer to a art of tech. There needs to be a critical discrimination – an admission that not everything is about money and not everything is for everyone. Digital creativity must cease the desperate demonstrations of sophistication or pointless futuristicness, must ungrip itself from the talons of ‘geekiness’ and learn to simply be, in a broad way that genuinely acknowledges everyone by confronting common truths.

Not anyone can learn to dance like they’ve been dancing every day since they were five. You rarely hear dancers trying to convince the world to learn to dance. You don’t get technology companies hiring dancers-in-residence. Perhaps you can see how this elite artform may in fact present something far more honest and accountable than the sham democracy of creative technology, an advocate of easiness in the pocket of capitalism.

Meanwhile, tech’s insistence that everything should be comprehensible and achievable to everyone is an astonishing smokescreen. It’s protecting the contrary agenda promoted by commercial forces, and it conceals the marked lack of expertise in technology (similarly illustrated in its “figurehead” culture – arbitrary elevation in the social ranks of various guys who get up on podiums and ‘passionately’ share their reckonings about ‘the future’ etc). The creative democracy is slyly dismissive, too. It’s an expression of one of the great blind spots in technology culture: that there are others in the world doing difficult technical and creative things that take a lifetime to learn, that not everyone can do anything, and that there are pursuits that arise from the nuanced world of individual lifetimes and personal, emotional, motivation, the results of which don’t resolve into a formula.

“Nothing in dance disappears into a black hole of ‘work’, every experience can be used in some way. But technology is committed to liberating empty free time; it forgets experience.”
I couldn’t care less about getting young people into theatres or promoting the spurious cause of technology in general, or indeed making dance look more futuristic or anything like that. I think what Rambert do is not lacking and they do not need saving. But part of dance is the quest for translators. Dance needs translators to bring itself into existence in the first place – via (often game-like) choreographic techniques. It also needs translators to transmit itself from dancer to dancer. And it needs translators to get from the dancer’s body to the audience’s brain. Making dance is an ongoing hunt for new translators who can shine light on a fresh part of this dim mystery.

I am not a master technician. I know a little about a lot of things, and if gifted time and resources, will use them to make what I can, within the constraints. But if Rambert wanted someone who is, for example, a highly experienced projection mapping artist, or a game designer, they hired the wrong person.

I am a specialist in boundary-breaking and presenting views in alternative ways, often challenging the status quo. (Note – this is a feature of me, rather than a feature of the technology community, which is by no means generally ‘disruptive’ by nature.)

I assume I was selected as someone who can help to show how technology might help dance, but it occurs to me I could have played this differently. I could’ve set my mind on producing a specific piece of work prior to meeting Rambert. I could’ve turned up, done my hours and made that thing.

And in doing so, I could’ve been anyone, and Rambert could have been any company. Hopefully it’s clear why I’ve made the choices I have.

Where two worlds meet

“Making dance is an ongoing hunt for new translators who can shine light on a fresh part of this dim mystery.”

Gimmicks

Creative technology is gimmicky. It’s new, and every project is clamouring for attention, as though the boat might sink at any time and only the loudest voices will get saved.

But here’s a surprise: you know contemporary dance? It’s just as gimmicky. No wonder these worlds want to talk to each other.

While digital brings bells and whistles, dance offers a sort of cultivated silence which sounds out any idea. The dance is not ‘about nothing’ any more than an abstract painting is. Every great dance seems to be founded in a reference to real experience, and every great dance is a force for something, making a case, almost – very often mysterious and subjective. To manifest in the world, this force uses a range of translators including the dancers, the choreographer, the set, the stage – and the gimmick.
Connecting Rambert

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While making things fast and trying stuff out was important given the timeframes, I was also keen that nothing I did was pointless, fleeting or temporary.

I felt the Rambert building, though beautiful in its way – and quite fitting in its location on the South Bank – was a rather grey, controlled place for such vibrant minds and characters. If technology could do anything, I decided, it could introduce some colour. I was acutely conscious that tech can easily crush the grace and beauty of dance. Light and colour, however, are areas where it can express beauty and life quite purely alongside and through dance.

So here’s what I tried out:

- **Thermal imagery.** I accompanied Rambert to tour locations, including Edinburgh and Sadlers Wells, and took several hundred thermal images and videos of the dancers at work. I tried printing the best images in different ways, including onto acrylic, several different fabrics, paper, card, transparencies and in 3D.

- **LED matrices with a Raspberry Pi controller.** The very bright chained LED array caught the eye of everyone who passed it. These addressable panels are the same as the ones you get on advertising boards, and designed to be seen at a distance. I displayed photos, video, words and animation. I enabled the screens to live feed from the monitor screen capture – effectively showing a small portion of whatever is on the laptop screen in real time. I set up the Pi with a camera module so the screen worked as a ‘digital mirror’. I have enabled the camera to respond to symbols so it can be used as an interface for triggering other effects.

- **3D printing.** I’ve been experimenting with scanning portraits of the dancers.

- **Kinect.** I used XBox Kinect depth camera to show some projection demos in the break room and scan some of the dancers for overnight 3D printing.

- **Arduino and sensors.** I began experimenting with AdaFruit Flora sensors and introduced an Arduino controller. LEDs will be triggered by motion.

- **Interviews.** I’ve recorded chats with several members of staff with a view to finding out more about Rambert and the people who comprise it, and the possibility of using the interviews in a piece of audio work.

- **Visualising sound.** Sound and dance are closely linked, and I’ve looked at rendering sounds that I’ve recorded during rehearsals, interviews, the building, and live, in different ways. For example, I have looked at some options for rendering graphical realtime responses to sound in Processing and projecting them, and have modelled some ideas for printing the data patterns in 3D.
Challenges and approach

My approach to technology in this residency was often informed by the challenges, so I have rolled these two together for this section.

It was clear that Rambert wasn’t experienced at hosting technical staff and hacking experiments, but this was, of course, all part of the learning process for them. I was happy to be their trial in this area and to suggest what might be helpful for future residents.

I wanted to use the opportunity to do some new things and learn about some new technologies. Partly this was because I wasn’t going to be able to do many of my ‘usual’ things (which involve trusted collaborators of many years), and indeed my usual stuff wouldn’t be particularly helpful.

Initially, I did consider some things I’d done before, though. I thought about branching narratives, podcasts and experimental events. But none of it felt like an authentic response to the situation I was in. Rambert is heavily focussed on its repertoire: creating, rehearsing and promoting a specific set of productions each year. To have any relevance to the company, I felt I must connect with the dancers and the rep, rather than go off and create something else without their input.

The things that interested me initially only interested me more as time went on:

- Rambert is its people, and has a deep relationship with its own history.
- A lot of technology projects consider dance in mechanical terms rather than human or philosophical ones, and don’t take into account the fact that dancers are tremendous artists. I felt a responsibility to address this positively.
- I wanted to take my lead from the dancers and choreographers, and learn from them. As first class artists with a lifetime of experience, it was obvious they had far more to teach me than vice versa. But they work full-time and intensively. They don’t have ‘playtime’, and they don’t spend all their time online like I do. I had to work on intercepting them.
- Setting up in their break room and running a lot of demos for them to chance across as they passed through, as well as the talk I was able to give at the all-company meeting in December, helped to establish my relevance in the building.
- The company were touring through a large portion of my residency. Developing relationships with the creative team and learning about their work was a priority, so I decided to try to join them.
- Some of the dancers sought me out with specific questions and ideas in the last couple of months of my residency, and I began to look forward to the possibility of longer-term collaborations as the year unfolds.

Practical challenges

- I was very tired a lot of the time. I got a lot of early trains, struggled to sleep well in hotels and was travel sick on the train more than once!
- I was prepared for this when I accepted the project, but I spent about half of my bursary just on travel and accommodation over the four months which meant I had to take on extra freelance work on some of the days I was home in Sheffield.
- I wanted to use this as an opportunity to stretch myself, and try working with technologies and materials I wasn’t familiar with. This meant things felt slow sometimes, but it also gave Rambert a realistic impression of how long it takes to get new things working.

Conceptual starting points

- “What does digital owe dance?” is a better question than “What can technology do for dance?” I feel it’s best to begin with the assumption that new artforms are indebted to ancient ones.
- How can I ensure I’m not doing “interior design” or simple illustration of dance concepts on stage etc, but show something of the authentic situation of digital and its relationship to dance, as it stands in 2016?
At the beginning of the residency, I purchased a tiny thermal camera attachment for my iPhone. I captured hundreds of images and video of the dancers, orchestra and audience. The technology is very new, and I believe I am the first creative to use it extensively with dancers and in theatres.

There were a few things that particularly interested me about this technology as an artistic medium:

- It is anonymous, but still highly personal. Every person's heat pattern is different.
- The heat camera singles out the hot things in a theatre – almost all it picks out are bodies and lights. That is, the camera is interested in the same things as me.
- It affords a vision beyond normal sight: it's another legitimate experience of dance (and of the world) but it portrays a dance of heat.
- It has choreographic and therefore collaborative implications – the idea that dancers can be expressed as their invisible heat is strange, but absolutely real.

“This week I learned that you can’t really make great dance more beautiful with technology, but you can always do something about the audience.”

Nov 4th, hackingrambert.tumblr.com

Thermal images
I had some small 3D prints created from thermal images I took during the Transfigured Night dress rehearsal at Sadler’s Wells. Later in the residency, I returned to 3D printing when it occurred to me I could use my Kinect as a scanner and capture something else about the dancers.

Part of the remit of this residency was to demonstrate new technologies to Rambert. 3D printing is not new by digital standards, and this one reason I avoided it initially. It has a gimmicky status in the tech world; people are a little embarrassed to have failed to have come up with ingenious ideas, and many of us feel weird about adding more plastic tat to the world.

It is, though, new to dance. And it’s new to me.

The special things about 3D printing are that it is fast compared to other model-making methods, and it can be used to create highly personalised and bespoke things that you can’t buy. Dance is, of course, a three dimensional medium; the more I learned about it, the more I wanted to explore it in sculpture.

“Truth isn’t measurable like data, so we have this gaping void between ‘creative’ and ‘technological’ work, as if neither are real to the other.

Dance is constantly going somewhere, and it always comes from somewhere.

I’m far more interested in the dancers as people than as shapes in space. Focussing on the technical form can allow us to ignore there’s something inside, driving all this extreme and rare ability.”

January 8th,

hackingrambert.tumblr.com
Tech for creative autonomy

Tech is interesting to dance to the extent that it affords dance artists with creative autonomy and freedom. 3D printing allows fast objects, which, via poured silicone moulds (for instance) enables accurate crafting of many more objects in many more materials. The question of dance’s relationship to the physical world isn’t technology’s to answer, but if dance artists decide to explore physicality in their work, then 3D prints, moulds and projection represent some new and quite straightforward ways in which tech can be put to use by them.

Scanning the models

I was constantly educated by the things that were interesting to the dancers. The Point Cloud demo on the Kinect is about the simplest thing you can do with it (even simpler than using it as a game controller) but the effect of the depth camera was very stimulating to the dancers, who felt they could ‘see all around’ themselves. As choreographer Didy Veldman told me, the dancer is always looking for their own back. 3D scanning and printing of portraits is a unique confrontation for anyone, but particularly those who deal with their own form all day. The models were, then, for the dancers; an experience of seeing themselves through technical eyes and, I suppose, my eyes.

Incidentally, the scanning process involved an awkward ‘dance’ too – often with me working my way around the dancers’ heads, almost wrapping them in cables. Some turned themselves on the spot, adding wonderfully to the process, because rotating perfectly and steadily enough for an old scanner and my trembly hands is a skill only a highly trained dancer could hope to deploy!

Dancing with your head

From the beginning, I was more interested in the dancers than dance. Of course, the two go together, but perhaps not in an obvious way. Dancers are not the servants of movement any more than they are the servants of technology. And dance doesn’t come from the body. Perhaps it lies somewhere between one’s history, one’s consciousness of the present moment, and a philosophical awareness of one’s status in space. In large part, contemporary dance is also rooted in histories – in the lives of individuals and in centuries of theory and experience.

Technology is excellent at simplifying – reducing things to physics and objective facts. But I wondered: is there a way to use technology to do justice to the human lifetimes that go into dance? Is there a way to dignify individuals, to invite confrontations with real people, to respect something other than the movement and acknowledge the part that individual experience plays in the construction of dance?

Technology is at least good at details – it notices everything and it is more honest than I am at showing things just as they look. So the scanner-3D pairing made sense. I could create portraits of the place where dance starts, the part that dance forgets, the place where all the heavy work happens – the head.
There was a lot happening in the home computing world at the time of my residency. Raspberry Pi launched the ‘Pi Zero’ – the first computer to be distributed on the front of magazines, coming in at under £5. I bought a regular Pi (more adaptable) and the camera peripheral.

The Pi has been around a few years now and is beloved among technology and education communities for its potential for creativity on a budget. There is an extensive community of coders and educators around it, and the computer is lauded as a teaching tool for the next generation of coders.

But detached from creative tech culture and education, Raspberry Pi’s advantages to the art world are still relatively unexplored. The arts are underfunded, but computing developments like the Pi—which comes in around £20 and is the size of a credit card—and new UK suppliers of hacker tech (like Sheffield’s Pimoroni) mean that ideas can be developed in-house, even for an institution working with very little money.

This was the first time I had really experimented with the Raspberry Pi, and with little coding knowledge I was able to connect the camera, take photos and videos, connect some LED panels, run effects, record and play video on the panels, display words, and even get the camera recognising shapes (thereby demonstrating primitive gesture activation).

There are extensive tutorials for all of this stuff online, and I’m convinced that anyone can do it (so long as they believe they can, of course).

Teaching dance to fish

The Pi is very small, very cheap, very powerful, and internet-enabled. It can also be accessed remotely so could be built into things and left running (I’ve used them like this in my own installations recently). Almost anything you might want to do with a laptop or PC, you can do on a Pi. They are also, potentially, a fun way for people from the dance world to learn a bit about technology, because the circuit board is visible and some of the additional boards require soldering.

Why aren’t we teaching dancers and choreographers creative technology skills for their work, rather than reinforcing a hierarchy of expertise by ‘advising’ them on creative direction? It’s tremendously creatively empowering and readily available. If I can do it, they certainly can.

“Why aren’t we teaching dancers and choreographers creative tech skills? It’s creatively empowering and readily available.”
I bought these panels as a simple and exciting piece of newly available tech, with clear performance implications.

I suspected Rambert would be well familiar with the Julian Opie and Wayne McGregor animation that was very popular a few years ago. But they might not realise that this stuff is now available for anyone to order online, quite affordable and has become considerably more user-friendly and interesting in the last year or so.

For me, the really exciting thing about the use of LED panels is how recently they have become available. If Rambert is inspired by these things, it could easily be the first company ever to attempt a range of effects.

The maker community are trying things with no clear 'reason' other than the joy of invention. This is joyful and to be encouraged, but limits the audience of these developments to other hackers. To really show what can be done, and find audiences to do justice to the newest developments in tech, these connections must be actively fostered rather than just waited for. Maker culture and dance have so little awareness of each other’s worlds, these connections will not happen organically.
Making The Truth

Notes from the residency blog
hackingrambert.tumblr.com

36  Making takes time
38  Finding the truth
40  Low res = high fidelity
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“Maker tech” experiments are time-consuming and inefficient – and that's exactly why they're so artistic and interesting. Efficiency and creativity don't cross paths all that often. If we're making things fast, we're not usually making great things.

The best laid plans etc. Intuitively it might seem like a good idea to break a big project into small “fast” sections. But there's nothing intuitive about this stuff! Sometimes apparently brief steps can turn out to be arduous and total dead ends.

The person who blogged the image opposite on a tutorial I found spent a month trying to hand wire a circuit, ostensibly to save a small amount of money. See, I think it looks really interesting, but as he explains, ultimately he was wasting his time. He decided to etch his own board instead. But you need a drill for that so, rather than buy one, he bought the parts for the drill. All so that he could make his own circuit board, so that he could synthesise a piece of hardware he could've bought off the shelf months ago.

There's no logic or reason to it – don't even try! Whatever the motivation behind the things we do for the love of creativity, it isn't rational.

Making is about the making. The clue is very much in the title. People get into this stuff because they find the process so rewarding, not because they desperately need a new alarm clock and want to try to save £1.75 (and obviously, these projects often cost a lot more than the factory version!)

This is the third ‘lightning’ residency I’ve done, and I'm starting to realise they have to be a celebration of the haphazard serendipity and excitement of creativity. If the only metric of success is the quality of a finished product after three or four months, (and bearing in mind these things tend not to be full-time), then no one is going to look good, and no one is going to learn much.

Short projects have to be about making – what it means to be a creative, and what we learned about the best way to do things in the context of the artificially short creation time.

There's something quite unsatisfying about that, though, and I wonder how well it fits with the reality of making. If the making is the point in this world, as opposed to the world of building software or web services or whatever (where you may want to automate as much as possible and get to the pub) – if it's the construction that you enjoy – then isolating the process from its potential might not be good for the soul. The two are bound together. You might love doing the scaffolding, it doesn't mean you're not motivated by the thought of seeing the house in two years' time.

The most exciting hardware projects can stretch on for years before they appear in front of an audience. Friends have recently ‘shipped’ their finished projects and it's only looking back on their blogs that I've realised they first started sharing their experiments three years ago.

I used to do a talk called “Making Things Fast” where I outlined the benefits of a rapid, improv, trial-and-error, discard-happy approach to creativity. But even I had to admit “Sometimes making things fast can take a year”. A year is a short amount of time to make anything good, and I've never had that long on anything!

The work drifts in and out on the tide of our lives – sometimes it will be washed back in when a new piece of kit, idea or person turns up. You put yourself in the hands of fate. That's serendipity, it's not something that can be planned for. You get into these things for the joy of seeing what the tide will wash in, not because you want to set a stopwatch and dredge the shoreline for trinkets.

It’s a shame hacker tech looks like tech! Not particularly new to say, but the culture of making generally has more in common with craft, which is of course well accepted as an ‘art’ thing. But, for example, hardware hacking often has about as much in common with building an app as baking a cake does.

“This is my third ‘lightning’ residency, and I’m beginning to realise they have to be a celebration of the haphazard serendipity and excitement of creativity itself.”

Nov 20th, hackingrambert.tumblr.com
I thought a lot about the truth during this residency. Early on, I learned that contemporary dance isn’t about losing yourself in a fantasy, it’s about connecting, again and again, with things that are real and that matter.

On November 16th, I wrote: “I’ve been thinking about people’s actual thoughts, and vital signs. I’m interested in getting people’s actual honest thoughts, the out-of-context things – not filtered for any particular audience. Similarly, what are the things that give us away? Our heat and breath, the sounds and other physical scratches we don’t mean to make as part of our art, but which always happen. All this stuff make up the mystery of dance, and there are technologies that can detect it and expose the side of performance that is always unintended and true – and I mean all performance: in dance, in conversation, at work, in any social context.”

Although I toyed with ideas around music boxes and gesture and image recognition stuff with the Pi camera, it all felt a bit ‘for the sake of it’. I didn’t want to construct a fantastical one-off. I wanted to do justice to the honesty that Rambert expresses so well, and to use my residency to explore this honesty. A couple of months in, and any time spent not looking for ways to meld with the spirit of contemporary dance felt like time wasted.

I also explored the idea of truth and honesty through the hardware I used in the course of the residency. As I explained in my presentation at the all-company meeting in December, I think technology meets abstract dance quite effectively in this area of pure technical authenticity. I found an affinity to contemporary dance in circuit boards, wires and visibility–the areas which aren’t always the point but where there is nowhere to hide. Technology’s flair, polish, impenetrable magic screens and fondness of stories are often where dance looks for a connection in these kinds of collaborations, but I believe there is a far more interesting and apt philosophical connection happening behind the scenes.

On November 17th, I wrote: “Technology appeals to me to the extent that it’s honest. But there’s a sense in which dance is considerably more honest, more technical and less “cultural” – there’s nowhere to hide. I’m interested in the relationship between truth and performance: the unique way in which (dance) performances are honest, how our bodies give away the truth, how things represent what they are very transparently, and what happens when they represent things they’re not.

Some things stand for themselves very intuitively (knitting patterns, live coding, pixels, the sound of breathing), some things symbolise and storytell, such that an interpreter (culture) is necessary. Maybe somewhere in the middle of the two it’s possible to tell an honest story.”

“Finding the truth

“What’s more beautiful than the truth? Or more useful?”
Low res = high fidelity

I have gone down an aesthetically low-fi route with a lot of my work during this residency. This is partly about my stylistic preferences, partly about time and cost limitations, and partly because there is a particular low fidelity truth I wanted to explore.

I drew loads of stuff. The images on this page are all based on thermal photos I took from the auditorium during the press photocall for the Sadler's Wells premier of Transfigured Night. Obviously these guys are pixel-sized, so on a regular computer screen they're too small for the naked eye to make out.

But I didn't design them for a computer screen, I designed them for LED displays, which are very low resolution and much more fun.

“In the tech world is pushing for higher and higher resolution and more distance from the truth. I'm always trying to go the opposite way to consumer tech – back to things representing what they are. There seems to be a rule that if the representation is true then the medium is dishonest, and vice versa. Thermal images are interesting to me because they break the rule: they show both what pixels are and where the heat is. Nothing is lying.

I also love the creativity of limitation. I love those 16K graphics competitions and things like the glorious Amiga demoscene. Constraints can be incredibly inspiring. There aren't many constraints on this residency, so I've realised I have to engineer some of my own. Limits are definition! I want to make something that:

1) Isn't pointless (however cool)
2) Looks good
3) Involves some stuff created by other people at Rambert
4) Says something that I think is meaningful about dance, and Rambert
5) Helps to teach me a new technical/artistic skill
6) Can come together really quickly*

You would be surprised how many ideas are instantly vaporised by Rule #1. Rule #1 is extremely important.”

November 11th, hackingrambert.tumblr.com

Dance and difficulty

In this post from December I consider the shortcomings of tech, the power of abstraction and the commitment of the dancers.

Dance is quite amazingly difficult. At this level, it's difficult by definition. The process of being good at dance is that you keep making things harder for yourself every time you do it, which is almost the opposite of the technology attitude. Tech is like: how can I get better so that things get easier? But dance asks: how can I make things get more and more difficult, while appearing easy?

“Never compliment or chastise yourself in the moment”, the dancers were told yesterday by resident dramaturge Peggy. “The moment is fine; it is what it is.” The moment passes, too, you can't hold it up with a ceaseless brain track of self-review. Seemed like good advice for other things, too. I think it's useful to remember that no moment is ever really yours – if you think performers have egos, you should see people who don't work with presentness! Time and ego are connected interestingly. Nothing is all your problem or your triumph, it's like, get over yourself – things pass so fast.

I'm continually impressed and inspired by the dancers – I keep thinking "Wow, that's as much as any one human can reasonably do," then I discover they've also been dancing in someone else's production and choreographing amazing original work, as well as touring the rep work and doing workshops and training! It seems impossible! They have the same number of hours in the day as the rest of us, I can't get my head around it.

But that does bring me to my next point, actually: they are busy. They are in the middle of multiple extremely challenging things all the time. It's not a lifestyle, it's not an indulgence, it's definitely not a job – it's an all-consuming 24/7 commitment. It's hard to work out how to infiltrate that, even if I felt sure that I could make some concrete contribution to their current work. It's very obvious to me that I can learn from them, but when their time is expensive, how can I make any speculative collaboration worthwhile to them?
I suspect technology is not a great medium for talking about dance, because technology is always speaking so deafeningly loudly of itself, but it can be a very good way of illustrating and enhancing dance.

As you might suspect, though, I’m more of a dictator than an illustrator. Collaboration is hard without knowing what it is the other party hope to gain, but I think I can be a kind of channel for inspiration and ideas from the outside world. I might not have spent a life perfecting dance, but I’ll be damned if all these years investing in the pursuit of pure worry go to waste. Perhaps I can make use of my thoughts. I see my role here as being a sort of weird mirror to reflect a bit of Rambert back on itself through a new lens. Although the temptation to create some gigantic thing is always there (you should see my notebooks), I wonder what it would add to anything. To be honest, right now, I would rather spend the time learning about dance.

“I have no interest in adding to the pile of stories about the magic of experimental technology. To realise a vivid idea that's real and important, this needs to be a story about the magical powers of dance.”

Dec 17th, hackingrambert.tumblr.com

Dancing between steps

The famous homegrown Rambert choreographer Christopher Bruce was here a lot in my first week, and I heard him say something to the dancers like, “Dance isn’t just the steps, it’s what happens in between them”. Watching the new choreography last night I was reminded again that, in a sense, dance isn’t about the body at all, it’s about manipulating invisible but totally real and existing space.

Just because you can’t see something, it’s not pretend. Again, the temptation to try to see a story is a bit of an ego thing: maybe it’s not about you. It’s like desperately trying to hear words in the crackle of the detuned radio. Abstract dance isn’t someone with a special message for you they’ve deliberately obfuscated to frustrate and mystify; it’s a very real thing. It’s the pushing around of air and eyes and feelings. I LOVE that all this is beyond narrative. It’s something I appreciate more and more. It feels like an authentic evolution. Like the difference between a colourful maths story for a six-year-old about someone buying some apples and bananas in a shop with 50p, and writing down an equation on a blackboard.

Dance is so fractal. It’s about extraordinary relationships on every level — with yourself, then with the little halo of space around you at all times, and then with greater and greater halos until it’s with everyone you meet. When you have an extremely nuanced and sensitive relationship with yourself, you’ll be able to have one with the world, and vice versa.

This is my way of saying that interesting connections between people are totally expected in the dance world. Peggy has an interesting connection with everyone she works with, and works on those relationships all the time, to the great benefit of the dancers here, I think. She said some brilliant stuff yesterday. Very roughly and simplistically: in movies, time pulls you down a visual tunnel; in the technology world, time is experienced as an ‘all at once’ landscape, but dance does both — and although its concepts are outside of time, you can’t escape those sweat patches growing under the arms. (It made me think someone should make a sweat patch sundial jumper thing for measuring ‘dance time’.)

My head

Rambert has a funny effect on my brain. If I watch them dancing for a while during the day, then when I’m falling asleep at night, I close my eyes and I can see the moves again and make up new ones. I don’t have a photographic memory usually, but here it is, running through everything in front of my eyes. It’s definitely lighting up some unused part of my brain. And it makes me want to write massive blog posts like this. My brain has been switched back on.
Freezing time

Right at the beginning of the residency, I was struck by the dancers’ relationship to time, in particular how their powerful, disembodied position in the present moment has to intersect with a total embodiment of a lifetime of learning. They are also always anticipatory: they are between places – past, present and future in one form. The urgency of the present often comes from a physical intuition about a future which will bring change.

I have been interested in presentness for a long time, too. The fragility of life is never far from my thoughts and dancers represent this wonderful paradox: they suggest to us through their work that freedom from time is possible, but they can only do this because they have, in some sense, donated their past and a future to the present.

I found I kept thinking about ice. Brittle and beautiful and always on the brink of change, it has obvious (maybe too obvious) implications as a meaningful creative tool in dance. But it’s also freely available, and relatively clean, as a material. It can be worked with inside the ‘clean’ spaces of the Rambert building, if required. And it’s very familiar in dance: there are freezers in the kitchens here, but they are filled with ice in case the dancers suffer an injury. The dancers sometimes have ice baths at the end of long sessions. Ice is a lovely thing here, it tempers the heat built up in the constant physical work, and keeps the machinery oiled.

So, after a lot of experimentation, I made some flexible silicone moulds which could hold ice, and created some ice models from the 3D sculptures.

The silicone moulds didn’t last beyond a few uses, but I made quite a few sculptures and they were beautiful with the light shining through them, and surprisingly detailed, close-up. Every grain from the 3D print came out, giving them an accurately ‘technological’ appearance. But there was no ‘digital’ in the final thing at all. It was a digital image processed through my hands, messily and laboriously, to create these ultimate icy likenesses.

Digital can get you started on something, and in some ways will never leave it, but these sculptures are almost anti-digital; perhaps even post-digital. While the highly technological might be ‘indistinguishable from magic’, as the famous quote goes, with impenetrable processes and a hint of mysterious intelligence, here we see the magic of tech disappeared into ancient history and demoted to the level of any other tool.

The ice sculptures, scarred by their birth in tech processes, remain beautiful, useless, eco-friendly, temporary, and free.
Final Thoughts

48 Conclusions

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1) The creative tech community must work much harder to understand dance

Rambert's interaction with the creative technology community, typically of contemporary dance (I would learn) is limited. There is a perception that dance involving technology is at best gimmicky, at worst disrespectful of the dancers' status as experienced artists. I found that the things that inspired the dancers were often unexpected. Simple demos on kit the technology world perceives as outdated, like the point test on my three-year-old Kinect, energised the dancers immediately as they experienced it in a totally different way to the typical 'maker'.

By the same token, more difficult and genuinely new technological experiments I worked on, such as computer vision with the Raspberry Pi and LED screen, excited my technology friends on a practical level, but these details weren't as accessible to the dancers.

If dance and technology are to have an ongoing conversation, tech will have to listen to dance and watch which things truly inspire dancers, rather than pushing an agenda of novelty or defending an artificial hierarchy of difficulty.

Technology will not learn about dance if it pursues its habit of treating dancers as subjects for demonstrating the latest equipment or maintains its role as a problem solver. It must be prepared to learn that not all things are fixable, it must be open to harsh truths about its own culture, and it must be accepting of the range of valid experience – there is no 'right' or 'best' way to enjoy things.

2) Creative tech must confront its identity, not invent it

These are attitudes which should begin to crystallise some credibility for creative tech as genuinely creative, and bring it closer to other art forms. Contemporary dance's secret strength is that it doesn't write its own code of comprehension. What's important about it is what's important to you, the audience. It hands over the weight of its meaning to a society of individuals – so it shares the burden of meaning and is shaped by a critical scaffold it cannot control. Contemporary technology needs to break away from its naval-gazing and work with real artistic experts to find an audience to share the load, freeing it up to focus on creating important work that evokes real feelings and important, influential thinking. This will, of course, involve accepting it is quite simply not as good, and for a community rewarded financially and socially everywhere it goes, a community afraid to look beyond its own self-congratulatory club for critical context, a community which has, astonishingly, even laid claim to the concept of 'the future', getting over itself is going to be a slow process.

Technologists are by no means the best judges of which aspects of their work are interesting. So why is there no impartial jury?
I feel the first test for a new collaboration should always be, “Is it comprehensible and needed by the dance team?” otherwise things are going to be unfixably unequal, throughout. You won’t have a collaboration, you’ll have a contractor hire situation, like someone who knows nothing about plumbing getting their radiators drained. You have no idea if they’ve done it right, if they’ve charged a fair price, or even if your radiators really needed it. Unlike plumbers, or indeed dance, technologists are in a staggeringly powerful position, rewarded in every way by society, and they must take responsibility for justifying themselves to those who, ultimately, may not need them at all.

When tech supplies tools, or things perceived as tools, they are just another tool, and the technologist becomes a supplier, serving the dancer’s creativity. But technology goes way beyond tools. What if the most helpful tech is the least useful? What if we turn down the ‘latest and fastest’ in tech, as we would in other spheres of life? What if we treat these ideas as we would a door-to-door salesman offering a super powerful gadget we never thought we needed? What if technology is in fact a vague and varied idea, like dance, that can encompass everything from the latest body data analysis to an animatronic fortune-telling machine? Just as it makes no sense to compare the work done at Rambert to Strictly Come Dancing, it isn’t helpful to bracket my stuff with motion tracking research into choreography tools etc.

I am trying to generate creative problems for myself, not solve them for someone else. Because there are so many approaches we can call ‘technology’, it is up to the technologist to educate and differentiate, and the non-tech partner must be open to the subtleties of the tech world.

There need to be more residencies and projects that collide these two worlds, and whatever form these projects take, they must respect the dance artists involved without the tech becoming a butler or a salesperson.

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3) Dance has much to gain creatively by educating itself in the available tech options

Care must be taken to extract as many benefits as possible from having someone in the building with this access, or an entire other world of knowledge and contacts could be lost. The excitement around the things I showed actively encouraged me to show more, as I wanted to explain, “This isn’t all there is! Nor is it hard, nor is it prohibitively expensive.” It’s a question of seeing this as something that one can do oneself.

4) As technologists, we might be mentors or facilitators to dancers, but as artists we are in it to learn

This residency kept bringing home to me the shortcomings I perceive in the technology community and the problematic relationship between tech and dance. If tech creatives are to benefit and learn from these collaborations, the creative potential must break free of tech’s inbuilt solutionism and dependence on novelty and cleverness. On the one hand, we might ‘mentor’ dancers to be creative technologists themselves, but on the other we must not see ourselves as the savours of anything! We don’t have all the answers, and we have good questions of our own to throw on the pile too. We must nurture the sides of ourselves that exist outside of the technology world, with its internal references, favoured themes and elected celebrants.

5) There are other technologies

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There need to be more residencies and projects that collide these two worlds, and whatever form these projects take, they must respect the dance artists involved without the tech becoming a butler or a salesperson.
There is no dance independent of the human dancers, and there is no equivalent ‘technology person’ that fits into some corresponding space opposite a ‘dance person’. There is no existing model to work from for these collaborations, and nor should there be, because I feel the pattern will be different each time it happens.

I’ve thought a lot about collaboration and what it really means. In the tech world, people want to collaborate with others whose skills complete a formula with one’s own, and result in a reasonably predictable outcome and workflow. There is a goal before you even start: “I can design, you can programme, together we’ll make an app.”

In the art or dance world, it’s not that simple. You have to know what’s important to you and not just what you’re good at, but what you want to become good at. You need to think about things in terms of learning and building and opening, not learned and built and closed. You have to start with yourself and your own history, preferences, quirks etc. You have to address truths and avoid hiding behind anything.

6) It’s not a collaboration between ‘dance and technology’ – it’s between dancers and technologists, or artists and artists, or people and people!
A case for a “contemporary creative technology”

Creative technology is struggling to find its way as an art form. This is something I write and think about, a lot. It’s a very difficult area to define, critically – it’s always going to be more tempting to slip into borrowed, more established, language and intentions than trying to draw a fresh line around a lump of stuff and say: “Here it is, a new thing. And this is what it isn’t.”

The good, subtle, open stuff in tech is vulnerable to exploitation. The broadcast avenues are overwhelmingly funded, and thus compromised, by consumerism. Creative technology is so incredibly close to commercial forces that it keeps getting dragged into them and conflated with their intentions. This is why it needs to be bold about its own values and differentiate itself. I think, though, that it has been going about this the wrong way.

Before this residency, I felt like creative technology needed a punk-like intervention, an interrogation: “If you don’t want to be a door-to-door salesperson or a jumped-up butler, in the world of technology, what can you be, and who will support it? If everyone’s getting good at this, why do you keep talking about the same people? If your culture is so artistic and democratic, why do you keep rewarding toys for rich people?”

But now I feel it should go further still. We could think about a ‘contemporary creative technology’, because contemporary implies a history, and suggests that we should acknowledge the past rather than fixating on future fantasies. Contemporary suggests a past to bounce off and be different to. A contemporary creative technology could lay down the microphone of narrative and exist in the depths of the present. We could stop writing our own story in the cultural canon – indeed stop telling stories about what we’re doing at all – and focus on being demonstrable and accountable.

So my impression from working with Rambert is that we need a contemporary creative technology culture to help these two communities talk to, and help each other. But first we need to confront the unpalatable fact that we actually don’t have one yet, and that is a rather more difficult step. We must take a leaf out of dance’s book in two ways:

1) Continually reappraise our democratic approaches, our influences and our associates.
2) Demand more evidence, in particular, for claims of unusual talent or insight, and for claims of knowledge of the intangible.

It might seem odd to cast something like technology as a bit ‘woo woo’, but it most certainly is. Dance and technology both play with ideas about what’s not visible – or what’s not visible yet – but one of the points of great dance is to evidence the reality of these invisible forces. Technology, on the other hand, asks you to take significance on faith, to take seriously the arguments of the people who most enjoy arguing, and to come to conclusions which place you in a particular team.

It needs, instead, to be open ended, open minded, open doored, and substantially more brave.

“In its eagerness to delineate itself before anyone else does, creative technology is rushing, pushing, and bullying its way into cultural significance.”
Leila Johnston was the inaugural Digital Creative in Residence at Rambert, Britain’s national dance company. Her four month residency with the company between October 2015 and February 2016 was part of Sprint, a digital intervention designed by Rambert and Caper and produced in collaboration with Alpha-ville.

rambert.org.uk
wearecaper.com
alpha-ville.co.uk

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