

Royal College of Art  
School of Design

British Airways  
BA 2119

RCA

# FLIGHT OF THE FUTURE

BRITISH AIRWAYS



Royal College of Art  
Postgraduate Art & Design



BA 2119: FLIGHT OF THE FUTURE

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# Chapter 01

# About —



# Introduction\_\_

The Royal College of Art collaborated with British Airways to explore the next 100 years of aviation. An exhibition at the Saatchi Gallery, London (1–26 August 2019) & Shanghai Future Lab, West Bund Art Centre (25 Nov–1 Dec 2019) showcased collaborative projects from students across the College that imagine the flight of the future, based on an in-depth research report commissioned by British Airways to mark their centenary.

Our idea was to create a body of work that was visionary and that engaged people in conversation and debate about the future. With in-depth global research at its heart, our programme, BA 2119, was a first-of-its-kind exhibition looking to the next 100 years of aviation, through three lenses; aircraft, experience and people, also focused on sustainability and technology to drive change.

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Design by  
Jazzy Olive

# Professor Ashley Hall

Project Lead  
Royal College of Art



Photo Credits: Laura Ferrarello

Working with British Airways, we've applied design research and innovation thinking to create this inspirational exhibition.

Ashley is Professor of Design Innovation at the Royal College of Art, London, and a visiting Professor at the Central Academy of Fine Arts Beijing. With an MA from RCA, and PhD from the University of Technology, Sydney, he has a background in design practice, teaching and research. He joined RCA in 2006 lecturing and researching on the Innovation Design Engineering programme. He now leads postgraduate research for the school of design and MRes in Healthcare Design with Imperial College. Ashley researches in design innovation methods, ranging from innovation strategy to design thinking, design for safety, experimental design, design pedagogy, globalisation design and cultural transfer. His international activity includes leading cross-cultural design innovation collaborations in Australia, China, Ghana, India, Israel, Palestine, Japan, Korea, Norway, Mali and the USA. He has developed and led commercial-academic partnerships in a range of different sectors from transportation to communications for partners including Airbus Industries, British Airways, BBC, Coca-Cola, Ford, Guzzini, Huawei, O2 Mobile, 3 Mobile., Philips, Samsung, Sharp, Swarovski, and Unilever.

# Dr. Laura Ferrarello

Project Lead  
Royal College of Art



Photo Credits: Stephen Pover

BA 2119: Flight of the Future imagines what opportunities the airline industry can offer to people, and their desire to travel and discover, in the space between now and 100 years.

Laura is Senior Tutor for the School of Design, MRes RCA Design Pathway Leader, and Acting Head of the MRes RCA programme. Her work explores inter/cross-disciplinary collaborative methodologies for fostering inclusive and accessible innovation through culture and technology. Her research focus areas include human-to-human-to-AI interactions that value human skills, design ethics, future of work, and design for safety. Laura is course leader of the RCA Global University System online course, Designing Services and Products with AI, and supervises PhDs in the School of Design and collaborates with a wide range of national and international sectors and industries through research and knowledge exchange projects and executive education. Her practice and research have been nationally and internationally recognised and published. These include BBC, Huawei, Fujitsu, Airbus, British Airways, Sonar+D, Science Museum. She exhibited in the Venice Biennale (Italy), Sao Paulo Biennale (Brazil), Pacific Design Center (Los Angeles), WHO Gallery (Los Angeles) amongst others.



Photo Credits: Royal College of Art



# Chapter 02 Contributors—





RCA  
09–14

Royal College of Art 09–14  
Review from Project Leaders, Prof. Ashley Hall & Dr Laura Ferrarello



British Airways  
15–18

British Airways 15–18  
Review from Director of Ext-Coms, Louise Evans, & Head of Brand PR, Amanda Allen



Foresight Factory  
19–20

Foresight Factory 19–20  
Review from Consultancy Director, Josh McBain



Airbus  
21–22

Airbus 21–22  
Review from Industrial Design Manager, Tobias Mayer



NASA  
23–26

NASA 23–26  
Review from Principle Human Centred Designer, Dr Tibor Balint



Safran Cabin  
27–30

Safran Cabin 27–30  
Review from Cabin Innovation & Design Vice President, Ian Scoley

# Royal College of Art (RCA)

Prof. Ashley Hall &  
Dr Laura Ferrarello  
Project Leaders



Photo Credits: Royal College of Art

We were approached by British Airways in December 2018 to discuss how we might collaborate to imagine to the next 100 years of air travel. This was an exciting opportunity to revisit developments in aircraft design and look much further forwards to deeper future developments. In a previous (unconnected) project in 2009, Airbus Industries invited Innovation Design Engineering (including Vehicle Design and Textiles) to explore the

future of aircraft cabin designs for the year 2030. The project explored a range of different outcomes through interdisciplinary group projects and supported new innovations launched by Airbus. Realising that new thinking was emerging led to Prof Ashley Hall from the RCA and Prof Peter Childs from Imperial College to collaborate with Tobias Meyer and Ingo Wuggetzer of Airbus group to write a subsequent paper on engineering optimisation verses design led win-win scenarios for the future of aircraft cabin design.

Over the course of the project we experienced a number of challenges. One of these concerned technology. As William Gibson said, 'the future is already here, it's just not well distributed yet'. Central to design futures is the arguments, narratives and positioning of technology projections. The issues vary from naively projecting something that already exists for a 20 year future through to describing a technology in terms of fanciful magic. The innovation strategy necessary involves a great deal of skill, research and thought necessary to strike the right balance. The greater challenge lies in terms of aesthetics, in particular how we can design today for a future population who in 20, 50 or 100 years time who may be using interfaces, technologies and models of deriving meaning that we cannot imagine today? Another challenge is the size of future questions. In 100 years time we can ask if we will have a permanent settlement on Mars and it would reasonable to answer yes or no. However, asking if we will have a lot more leg room in economy or sub two hour flights to any part of the World by 2030 is much more difficult. BA CEO Alex Cruz summed this up perfectly when in our briefing he asked whether flying the way we do now would exist at all in 100 years. We might take a magic pill and wake up on the other side of the world or enter a box and teleport.

Ultimately we use today's aesthetics, forms, materials and concerns to project from in a way that often says more about how we view the deep future from today's perspective than what it will actually be like to experience those future design concepts. In practical terms our futures design innovations are road maps providing planning insights, industrial discussions, career evolutions and broader industry discussion points.

The public nature of our exhibited work means that we are also communicating across a broad canvas of views from industry CEO's to diverse public gallery visitors. The demands of these exciting and rare projects pushed at the top limits of our designers as they collaborated and negotiated across diverse teams of creative disciples and cultures. We mapped the relationships between our design team disciplines and their cultural backgrounds and also the interactions of our project partners and collaborators. Much of this was facilitated by a very open flat project culture that was encouraged by BA and embraced by all involved. Through the mapping process we aimed to show the complex set of interactions that take place through this platform as the following testimonials from our project partners highlight the learning and new experiences were gained in all directions.

## Partners

We seeded the project at the start with a dual set of inputs from our own knowledge of future of flying fly themes alongside 12 future of flying drivers researched by Josh McBain and his team at the Foresight Factory. As the project developed, the influences mixed in a complex web between academic, industrial and design teams. Several of our teams were supported by British Airways experts who offered deep insights into current and future challenges.

## Concept Evolution

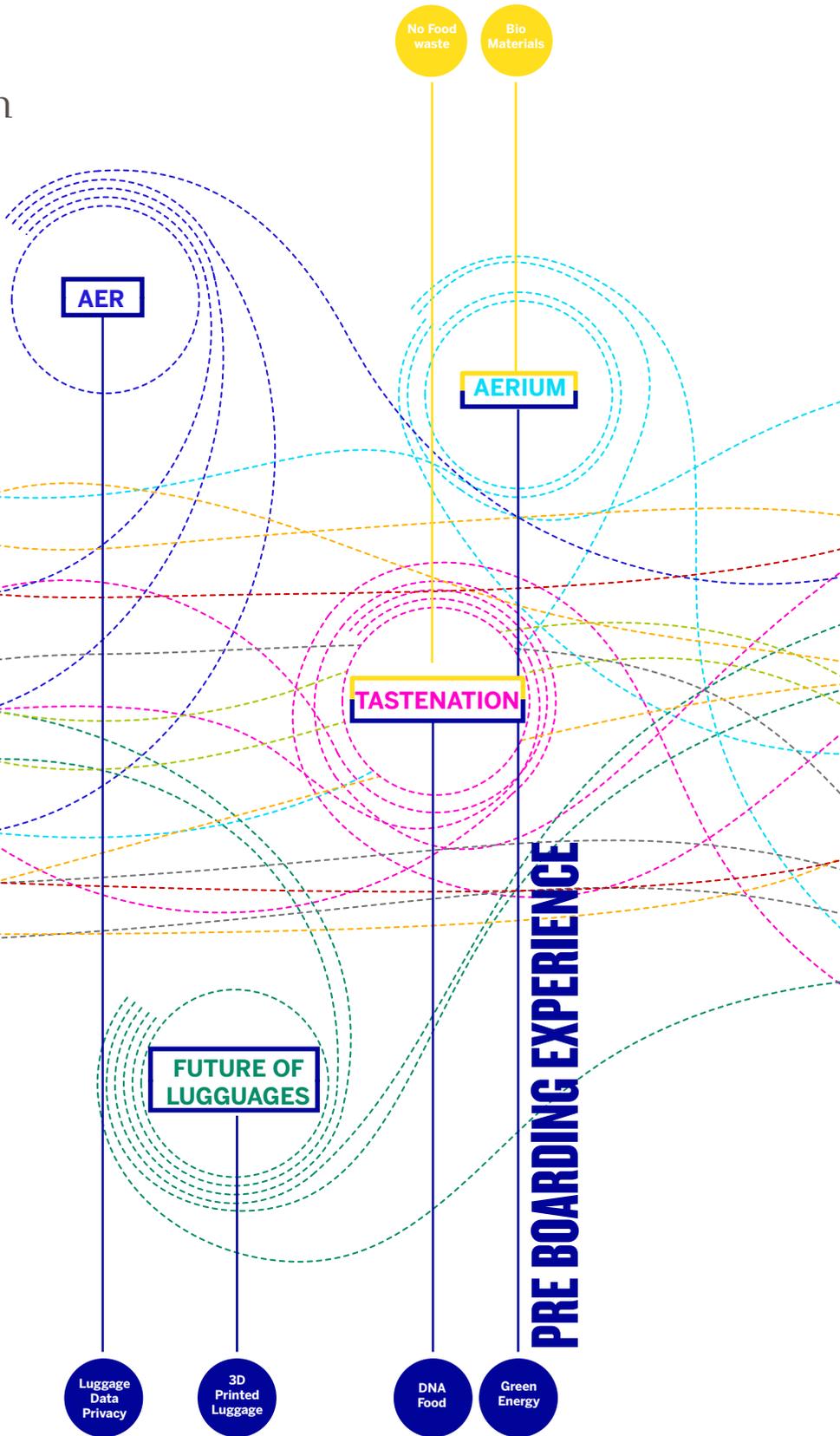
The one thing we do know about the future of flying is that it's only limited by our future visions. From the ancient Greeks and earlier we dreamt of flying. A tiny amount of time later in planetary terms we did. The same for the Moon and soon Mars. All within 150 years. Alex Cruz may well be right as one thing we got wrong over the last 100 years was not anticipating the incredible de-materialisation of technology and experience. We may well be plane-free in 100 years. Roll on the future of flying in 2119.

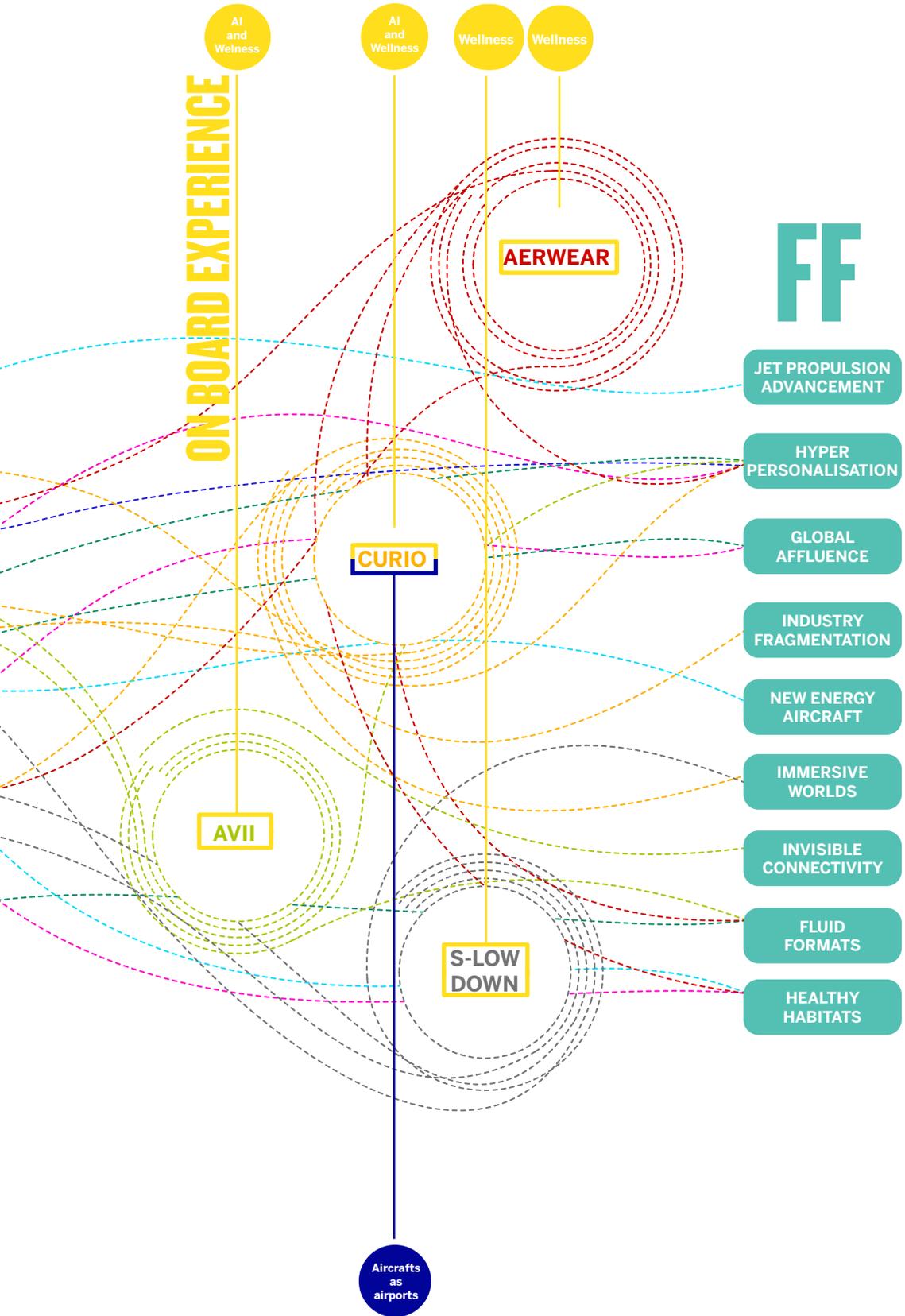
# Concept Evolution

Infographic by  
Laura Ferrarello

# RCA

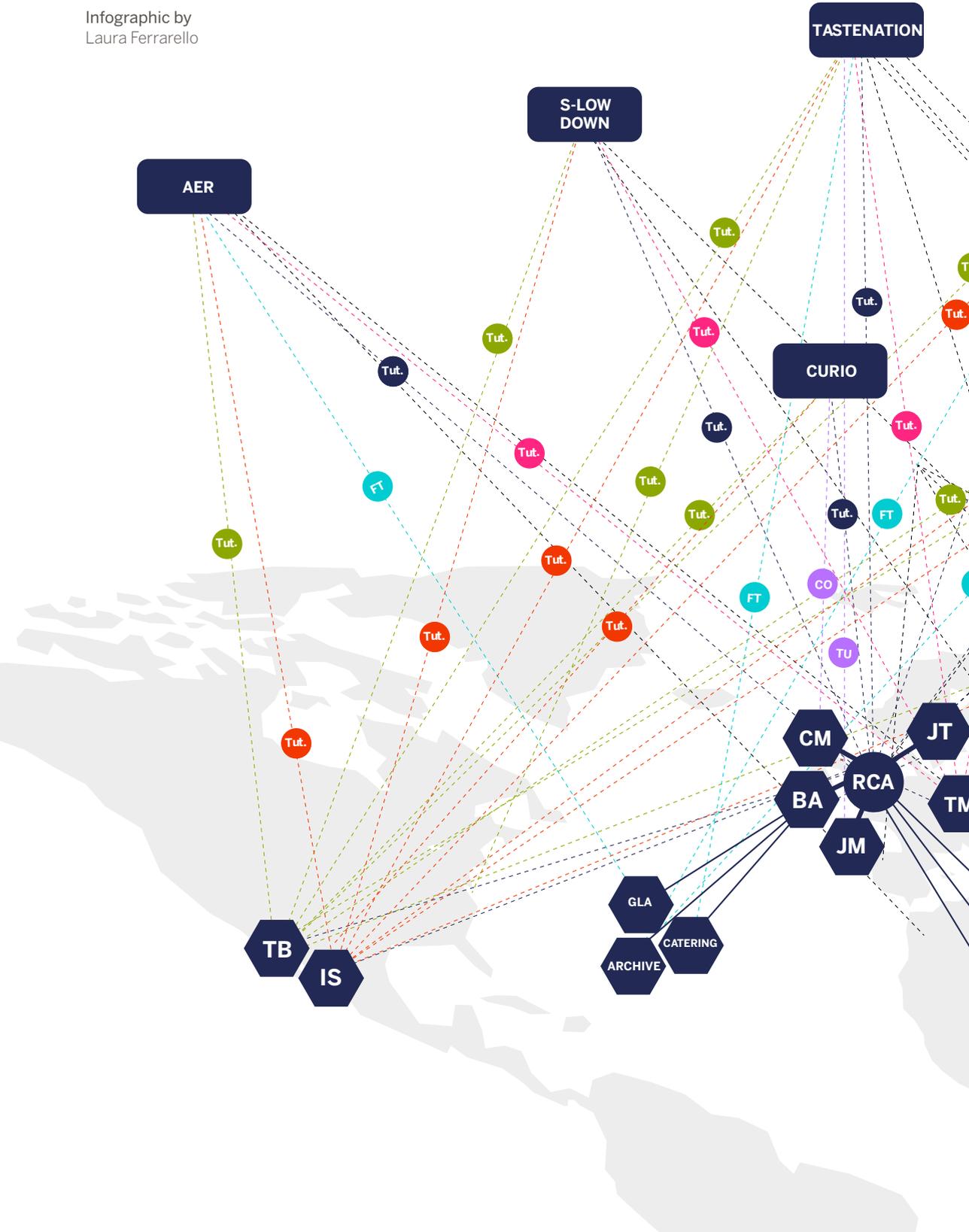
- AIRCRAFT**
  - SUPERSONIC
  - MODULAR AIRCRAFT
  - TRANSHUMAN FLIGHT
- EXPERIENCE**
  - SUPERSLOW FLYING
  - FUTURE OF LOYALTY
  - DEMATERIALISED FLIGHT
- PEOPLE**
  - SUSTAINABLE EXPERIENCE
  - KILL TRAVEL CLASSES
  - CO-FLYING

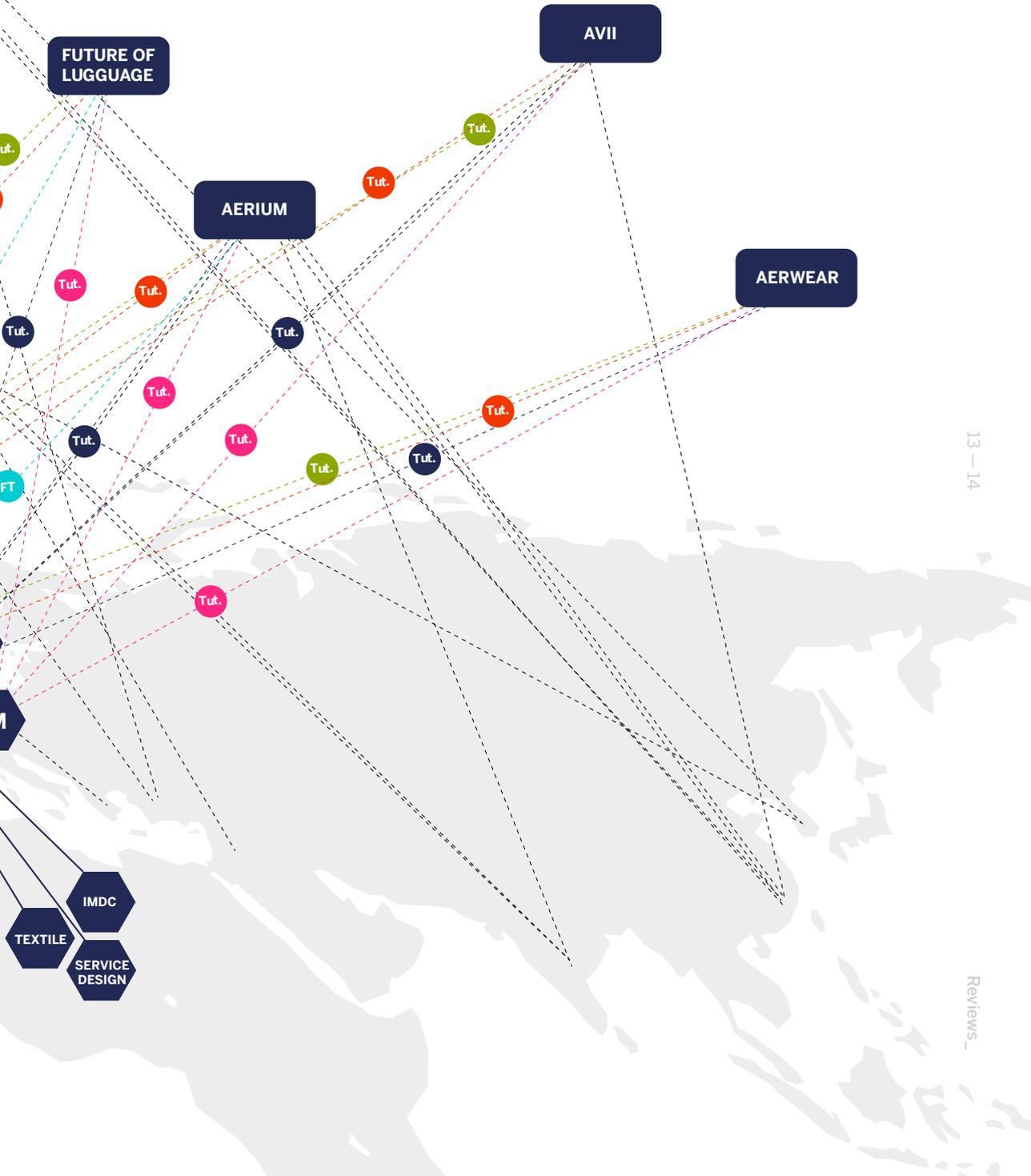




# Partners

Infographic by  
Laura Ferrarello





# British Airways

Louise Evans  
Director of Ext-Comms  
at [British Airways](#)

Amanda Allen  
Head of Brand PR  
at [British Airways](#)

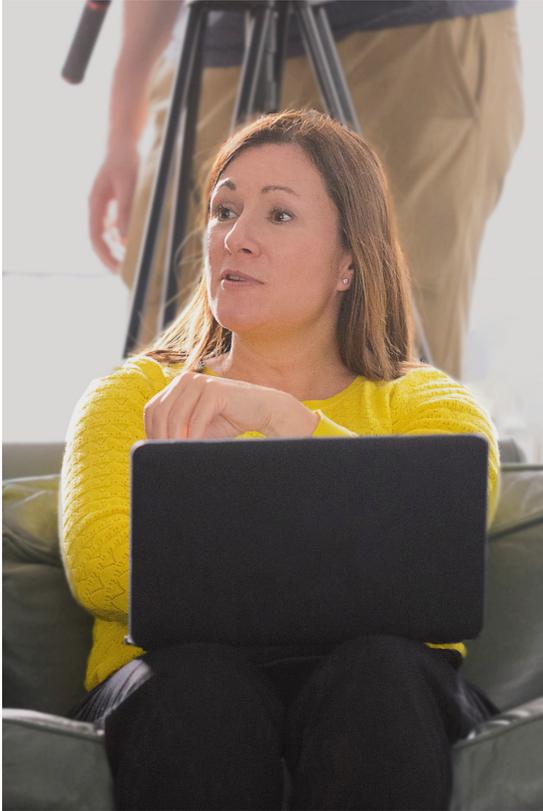


Photo Credits: Stephen Pover

We considered long and hard how British Airways should mark its centenary, a landmark in global aviation. It's tempting to look back on the preceding 100 years and become steeped in history – and we did that to a certain extent with aircraft painted in former liveries and the creation of a digital archive from our Heritage Centre - but we thought it was also important to look forward and explore what the future of aviation could be.

We worked with the RCA on the customer experience of the future – BA 2119: Flight of the Future. We sought to push the boundaries of imagination and explore how future generations will circumvent the globe in a World of advanced jet propulsion, hyper personalisation, automation, AI, modular transport, sustainability, health and entertainment.

From a meeting in late 2018 to a full-scale exhibition at the Saatchi Gallery in London in August 2019, it was a fascinating journey. We learnt a huge amount from both the students and lecturers in terms of both the technical process of design as well as the creativity and technical ability it requires.

Each team of five students (there were 40 students working on the project in total) were post-graduate from a range of disciplines from fashion, textiles to service design. That partnering of specialisms was critical to the success of the project and drove very different ideas from each group on the same topic.

Throughout the project we brought together groups of British Airways colleagues and external aviation experts to give feedback at the student critiques. That was a learning opportunity on both sides and there was always a real buzz about the partnership and ideas sharing. Some groups bonded quickly and easily, developing their ideas steadily as the weeks passed. Others moved their ideas around dramatically from week one to the final output. Without exception, all the students embraced the project with huge energy and enthusiasm and delivered final concepts that genuinely stretched the imagination.

Two days solid work saw all the RCA exhibits installed, alongside British Airways' first-of-its-kind VR experience, Fly, within Gallery Three at London's Saatchi Gallery in the famous King's Road. The room was transformed into a free-to-view sleek, modern and inspiring exhibition.

We hosted two launch parties with nearly 500 customers, business partners and leaders from across British industry. There was a palpable buzz at both events and the guests were effusive about the vision and quality of the exhibition. It wasn't something they expected from British Airways but the future gazing and sheer imagination of the ideas on display really impressed them.

The collaboration with the RCA enabled us to open up debate in areas from AI to 3D printed food and health solutions, to modular aircraft connected to city infrastructure, to hyper personalisation, to immersive virtual realities and the rise of super-slow and hypersonic flying.

Over the course of BA 2119: Flight of the Future at Saatchi (August 1st - 26th), over 10,000 people visited the exhibition. The feedback has been overwhelmingly positive and as a business we will now explore how we take the ideas and concepts forward.

Using research and sharing this and working with the RCA helped us to think more imaginatively about the future of aviation. We were particularly struck by the diversity of ideas from slow flying, to green planes to 3D printed food and health solutions. The traveller centred approach and the genuine solutions to human issues in travel that the teams identified were fascinating. It's really demonstrated that there are so many opportunities for evolution and revolution in the aviation space beyond today's aircraft and cabin design.

Without exception, all the design projects and ideas challenged our thinking and all the concepts really felt achievable as well. Aerwear took some time to get our heads around. The idea of a complete wearable pod that allows the human body to exist within the aircraft space was strange to start with but as it evolved, we could see the possibilities and clear benefits around comfort, privacy and safety. The 3D printed food idea could be a game changer in terms of providing a personalised service for customers, including those with allergies, while drastically reducing aircraft weight and food waste. And AVII was a fascinating concept that has real potential. Technology will drive change in all industries, but we loved how this concept took it one step further. The technology will identify customer needs, but the real game changer is how those insights can translate into a hyper-personal and human customer service.

The approach the RCA took really accelerated our thinking around what the future of flying could look like. So often we see solutions to individual issues but the holistic approach the RCA took, which looked at the individual, the environment, existing design and technologies and the restrictions around them gave an excellent overview. They applied a human lens to technical issues keeping the user experience at the forefront of their designs.

The starting point, which was key to shaping the RCA's work, was in-depth research, commissioned by BA. With the research the RCA were able to reflect on the core issues and they had free reign to go in any direction they wanted to. They brought the best of current thinking from across a broad range of design disciplines. The partnership element of BA 2119 was vital. We gave all the students behind-the-scenes access to British Airways, so their ideas were based in the reality of a busy airline operation.

The findings of the BA 2119: Flight of the Future Report not only offer us unprecedented insight into how consumers across the world feel about flying now, but what they will expect from us, as airlines, in the future. In the last ten years alone, the airline industry and flight experience has changed in so many significant ways, including improved fuel efficiency, noise reduction, in cabin design and luxury. It is therefore not hard to see how, at this rate of progress, these seemingly unreal predictions will come true.

**Alex Cruz**  
Chairman & Chief Executive  
at [British Airways](#)

They were able to speak to a range of specialists from engineers and designers to environmental managers, so their ideas were formulated with those professional insights in mind. We don't think anything they created is beyond the imagination or impossible to deliver in the future.

There was a full team effort from the RCA to bring this project to life. Every step of the way the students were guided by senior academics from the RCA and the RCA leadership's input was absolutely vital to the overall success of the project. Their light touch challenges - quite like coaching - helped shaped the direction the students took. This is a technique that we could adopt for ideas generation.

The breadth of thinking from across different RCA disciplines was also very important. For instance, we loved the scientific thinking one team brought, looking at how organisms that can harvest water could be used as an on-board water supply, reducing aircraft weight and waste. Or algae that can clean the air in flight. Because the RCA's teams were diverse, the result was diverse thinking and unique ideas. The exhibition was proof that this team approach works.



# Foresight Factory

Josh McBain  
Consultancy Director  
at [Foresight Factory](#)



Photo Credits: Stephen Pover

As part of BA's campaign to celebrate its 100 years of history and innovation, Foresight Factory was commissioned to produce a report examining the future of flying in the coming century. This report was aimed at providing the research and thought leadership to underpin the work of the RCA in developing the Flight of the Future exhibition at the Saatchi Gallery.

A survey was sent out to 13,000 global travellers across 10 global markets, asking them about various aspects of their flying experience in 2019, and how they might want it to look and feel like in the future. We also interviewed senior subject matter experts, futurists and thought leaders spanning the aviation industry and beyond in order to understand the underlying technological, scientific and socioeconomic drivers of change.

Drawing on this foundation of insights, we ran workshops with senior BA stakeholders and RCA students to develop five key scenarios that would define the flying experience of 2070. Finally, we consulted with futurists to push the boundaries even further, hypothesising what flying could look like in 2119.

## **Supersonic Transport Ecosystem**

Explores how demands for faster travel will bring together all parts of a consumer's journey, creating a seamless experience through modular transport systems—from leaving the office or home to arriving at a destination.

## **My Flight, My Way**

Focuses on how personalisation will impact the in-flight experience on aircraft. AI-powered personalisation enabling passengers to bring cloud-based work and entertainment profiles to their seats, while holographic flight attendants will field basic questions and requests, freeing up cabin crew to offer more value-added interactions.

## **Sustainable Skies**

Investigates how solar panels attached to aircraft can provide a constant source of energy while flying, as well as aerial recharging stations that provide energy through linear induction without requiring the aircraft to land.

### **Air-time Re-imagined**

Imagines larger craft with on-board zones available for different activities. These could include immersive entertainment, language lessons and destination information, or health-driven facilities allowing passengers to feel better at the end of the journey than at the beginning.

### **Skytrain**

Predicts drones grouping together to travel in parallel for inter-city journeys, making it safer and more energy efficient, before separating to land at different destinations on arrival.

The contribution of the RCA students provided a unique and powerful addition to our ideation process, helping to make the outputs more design-led and future-inspired; empowering industry stakeholders to see beyond day-to-day constraints. Such input ensured we were able to bring the future to life in a way that felt more real and achievable.

Indeed, we have produced future scenario projects for the past 20 years – covering all sectors and topics. But rarely have we seen the outputs be manifested and realised in a way that communicates the projected futures so intricately and dynamically.

It is a testament to the creativity and talent of the RCA students and Professors, that such compelling and exciting concepts, which remain firmly anchored in the commercial and practical realities facing the future of the aviation sector, were successfully developed. We look forward to working with the RCA again in the future.

The pace of change and impact expected on the industry was far greater than expected at the outset of the project. From the emergence

of jet propulsion to new sustainable technology, the challenges and opportunities facing the aviation sector are much closer than we realised prior to this work.

The support and expertise of the RCA Professors in helping conceptualise how we communicated the future scenarios was of great value. Alongside this, the contribution of the RCA students to the workshop process ensured that the final outputs had a holistic design focus of what a future aircraft would look like. Finally, access to the RCA's wider network for experts and futurists was paramount in ensuring we had the relevant and required expertise on hand to meet the aims of the research.

The iterative approach of the critique sessions for RCA students was a valuable design-thinking methodology for developing and refining concepts, ensuring that they continually incorporated feedback and refinement as they progressed from an embryonic idea to final concept.

What this has shown is that through design-led ideation, it is very much possible to marry core commercial implications with imaginative and powerful thinking, ensuring that a whole range of stakeholders can leverage the insights in the present but also use them as inspiration for the future.

The RCA was instrumental in helping us develop scenarios that were tied to specific innovations in design. Often scenario outputs can be broad and communicate wider change across a sector, but the application of the RCA's design thinking made us much more laser focussed on the kinds of technologies and possibilities we would have to work with in building these scenarios.

# Airbus

Tobias Mayer  
Industrial Design Manager  
at [Airbus](#)



Photo Credits: Stephen Pover

If the fascination of flying once caught your interest, you will likely answer this with a set of emerging technologies or new ways of mastering physics. But the HOW does also incorporate a strong emotional, even a human aspect. The desire to travel and the passion for flying became a symbol for freedom.

Today it seems that we've overcome all technical hurdles because flying became

so ordinary. Even the farthest destinations seem easily accessible at an affordable cost. But society keeps evolving. Just in the last twenty years we have seen developments affecting parts of our daily life in an incredible pace, which makes it hard to bet on topics still valid in 20 years. Will we still own products or simply own a multi-sensory experience captured genetically?

The orientation towards the future reveals the possibilities where we might go, including our current actions. However, from time to time it is appropriate to look into the past as this is a source to learn and gain trust e.g. how interlinked impactful innovations took place or simply that ambitious or impossible goals of bold women and men brought us to where we are. Few people know about their failures, the amount of attempts or even sequential and strategic steps to achieve their objectives.

British Airways had a good reason looking back entire 100 years. To the beginning of intercontinental general aviation. Its birthmark...chapeau! This heritage was truly achieved by generations. So who should better ideate on the next 100 years than the next generation of creative masterminds from various design disciplines?

I guess it was an impressive educational lesson for the students on storytelling, exhibition design, interpretation and extrapolation of technological road maps, anticipation of future needs & desires up to describing a user interaction with an increasingly smart technology. It was also quite interesting how all the ideation opened novel ideas how a brand experience could be described – or perceived if words cannot express.

Working in this vague environment strengthens the skill to focus on the motivating force, examine an idea from various perspectives,

from present same as from far future.

The students now feel probably a bit more familiar in the uncertain and are reminded on the responsibility of a creator to guide the possible towards value for slightly different users.

Envisioning the next 100 years requires a pretty vivid imagination. In fact it's quite a challenge not to end up into science fiction. Hence it was a smart plan to present the concepts in the Saatchi Gallery. A space for art is probably the best location to showcase the ideas positioned so far from now. Not complete but sharp enough to create a coherent impression of connecting with the future.

The ideas were just as blurry or minimal enough so that the guest could feel the chronological distance while coincidentally trying to bridge the gap with their own imagination. Some ideas were so inspiring that discussions around the exhibits were the variable to understand this future from a temporary collective point of view still resonating days after. The concepts helped to imagine the future a bit better through bypass rationale analysis of probability and guide the attention to the profound question whether we can imagine traveling like that and believe it would create value.

Although I am not a student anymore I experienced that project as very educative. I feel honoured been part of the panel and appreciated so much the discussions during the tutorials. As a concept designer at Airbus, I worked on some Vision Concepts. Those Concepts basically give guidance where to take action or better understand the holistic setup. But a Vision for one of the oldest Airlines, 100 years into the future... I am still smiling on that opportunity... revealed again another horizon.

Long live the Vision!

# NASA

Dr Tibor Balint  
Principal Human Centered Designer  
at [NASA](#) Jet Propulsion Laboratory



Photo Credits: Dr Tibor Balint

Predicting the future is not easy. As we look forward to the next hundred years at the BA 2119: Flight of the Future exhibition, we can safely state that the farther we project out with our current ways of thinking, the more likely that our predictions will be incorrect. Still, it is worth trying for the reasons discussed here.

Looking back, in 1903 the Wright brothers demonstrated the feasibility of human flight.

Soon after—in 1919—the first customers flew from Hounslow Heath to Paris. Over the past hundred years BA carried millions of passengers around the World. Airplane flight became a routine mode of transportation for the general public. Technological innovations greatly benefited aviation. Planes evolved to carry more people safely, faster, to larger distances, with added goals to make these journeys comfortable for the travellers, while being economical for both the passengers and BA. Some of these factors are competing. For example, flying more people, fitting more passengers on planes constrain the available space while also making flights more cost effective. Tensions between desirability, feasibility, and viability drive opportunities to innovate through technology infusion, optimized work-flow, and designed interactions with the customers at various touch points in their journeys.

Projecting forward to the next hundred years, BA tasked over forty researchers from the Royal College of Art (RCA), to envision what human flight experiences might evolve towards. MA, MRes and PhD researchers formed eight teams and brought their expertise from a set of disciplines, including Innovation Design Engineering, Intelligent Mobility, Service Design, Textiles, Fashion, Architecture, Interior Design, and Design Products.

Through their concept developments the design work-flow included background research to identify trends, ideation with divergence and convergence phases to select options then to make choices; setting assumptions and expectations, conversations with subject matter experts, visiting BA facilities, sketching, making mock-ups and prototypes, and building the final artefacts for the exhibition which embodied the core ideas that the teams wished to communicate

to the public through a special BA anniversary exhibition at the Saatchi Gallery in London. Throughout the development process, regular critiques provided opportunities to assess their design progress. Feedback from BA stakeholders who funded the research, RCA faculty, as well as from designers and external subject matter experts helped the teams with refining and adjusting their approach through a forward looking iterative search. The teams mostly focused on user experiences and benefits for the traveller, and less on the evolution of aeronautical engineering technologies. This type of design work-flow is different from typical engineering and science driven developments, which can be explained through cybernetics.

From a cybernetic perspective, engineering design typically involves an observed paradigm. Rules and requirements are set. The roles of managers and engineers are defined by keeping projects on track and delivering viable desired outcomes, promoting incremental developments. In contrast, designing the future requires second order cybernetics. In this observing paradigm designers change the rules and assess their impacts. This 'designerly' approach—employed at the RCA—can lead to novel outcomes, afforded by a broadened set of options and assumptions, which are not considered under a first order paradigm.

The future of flight over the next couple of decades will likely be incremental. But what will happen a hundred years from now? Will we travel on jet propelled airplanes? Will other options become available to replace long haul flights? Will supersonic flight return? Will suborbital flight take us across the globe in hours? How will these or other paradigm shifts change the traveling experiences? With so many unknowns, as we project forward, we can only create glimpses of

possible futures. While these will very likely change and evolve from our current understanding, we can still reasonably extrapolate forward and envision a future that is built on today's emerging technological and societal trends. Such changes will create new options to economically and safely respond to the comfort related needs of all travellers. Catering to these passenger needs has always been an important aspect of BA's business model.

One of the trends identified by the RCA researchers was sustainability, which addressed green flight, recycling, 3d printing, water and solar energy harvesting during flight, and bio-technology. Other trends covered soft robotics, new materials, artificial intelligence, nano-technology, integrated biological and electromechanical airplane designs, and personalization.

Exhibition visitors were presented with eight exciting visions of plausible future flight environments. These were brought to life by RCA designers, who addressed today's air travel related pain points through their unique solutions, inform and entertain the travellers could provide similar experiences to cruise ships and leisure train rides.

## **Aerwear**

Today's planes are crowded. We could enhance freedom of movement and personal space by designing wearable lightweight seats, utilizing soft robotics.

## **Tastention**

We could customize food for each traveller's DNA, and 3D print personalized menus based on their health, cultural, and physical needs through a multi-sensory dining experience in a sustainable form.

## **AVII**

Artificial Intelligence could be used in the cabin to monitor the physiological and psychological conditions and needs of each passenger, while assisting the crew to provide hyper-personalized and responsive services.

## **Aerium**

To protect the environment, we need to reduce our carbon footprint. This green flight concept re-imagines the fuselage as a synthetic biology system, where the multi-layered walls can sustainably harvest both moisture and solar energy during the flight. The collected resources are then re-used to support the needs of the travellers.

## **S-Low Down**

Flights don't always have to be fast. People could enjoy the journey through slow flight experiences. Aerial floating platforms with viewing and exercise decks, enhanced by virtual and augmented reality screens to inform and entertain the travellers could provide similar experiences to cruise ships and leisure train rides.

## **Curio**

Modular hypersonic planes could extend the flight experience into the terminal, comfortably merging the wait time into the journey. New materials, lightweight structures and smart interfaces would make the transition seamless.

## **Future of Luggage**

The ultimate light travel is not having luggages at all. As a personalized service, bespoke and tailored 3D printed fabric clothing made out of pixel-suit materials with haptic sensors could await the travellers at their destinations, then recycled at the end of the trip in a sustainable way.

## **Aer**

Another approach for light travel could be a shape-changing smart luggage. This futuristic approach would respond to traveller needs by self-assembling the needed content into a right-sized shape shifting package. DNA-based security for access and self-arranged transportation from home to destination would enable light travel. Autonomy, soft robotics, biotechnology, and nanotechnology would all play roles to make this concept a reality.

Regardless what the future brings, it is safe to say that as our World keeps changing, new technologies will impact the ways we travel. What remains common for each future time period is the user experience, which will always need special attention in response to these changes. By envisioning future technological, environmental, cultural, and other changes, each of the RCA presented speculations and provocations introduced new options, and broadened our outlook. If these ideas spark the imagination of other designers, technologist, developers and implementers, they may drive future development directions for technologies, and could reshape human centered interactions and flight services.



Photo Credits: Stephen Pover

# Safran Cabin

Ian Scoley  
VP Cabin Innovation & Design  
at [Safran Cabin](#)



Photo Credits: Stephen Pover

I believe we are fast approaching a threshold in commercial aerospace.

In 1957, Boeing ushered in the modern jet age with its revolutionary 707 and for the past 60 years, a whole new industry has been busily optimizing the state-of-the-art to the point where these technological wonders have now reached astounding levels of efficiency, safety, comfort and reliability. But their DNA has

barely changed, with many of the products and systems established back in the day still defining the architecture of the modern cabin, its service infrastructure and how it operates.

And here's the problem; the laws of physics, safety and the need to make money haven't changed, but our future isn't the 1950s anymore. We still have the same pressurized tube flying at 36,000 feet with hundreds of diverse individuals occupying a very small volume of space together for long periods of time. But the richness and variety of the experience, like World records, has diminished through optimization to an almost negligible level and the paradigm shift in value and experience that the 707 enabled back in the 50's is now being fought out over upholstery detailing, mood lighting and the ability to connect to the internet.

"Bring back the romance of flight", "It's all about an amazing personalized experience"... phrases I have heard (and in all probability used) many times over the years. All empty sentiment... what does it really mean? Does it all really just boil down to brand saturation and a fast internet connection?

Something has to change... and if it does, what would that be and how would it reshape our future?

And so, this is why challenges like the BA Flights of the Future are so important for an industry which is largely caught up in the race to the bottom. Evolution can only take you so far from a common starting point, but a vision of an enticing future context can flick the switch, let us change direction and get onto a whole new development curve.

All too often innovation is confused with novelty or advanced technology, fireworks in the night sky, briefly spectacular, then

gone forever. For me, innovation is all about context, a thread of relevance, however far reaching, that ties together objects, emotions, technologies and experiences to create new opportunities.

Unleashing a team of young, enthusiastic and unencumbered minds on to a topic as broad and complex as the next 100 years of commercial aviation is at the same time terrifying and liberating. I saw the enthusiasm and engagement that resulted from their first "behind the scenes" insights with BA, the wonder of today's flying machines up close and personal, the complexity of the enabling infrastructure and the humanity of the staff and crew who are at the same time safety officers, police and hosts. I watched them struggling to come to terms with the big picture, striving to gravitate towards themes, ideas and notions.

Because seeing into the future is tricky. Our increasingly savvy populations are not just becoming more demanding but are now so over-saturated with content, choice and experience that, often case, they no longer even know what to demand or how to articulate their desires. Whilst our virtual networks expand exponentially, we question who will end up in the driving seat.....and speaking of driving seats; our future mobility networks follow suit, with autonomous eVTOL, supersonic, hypersonic and galactic solutions just over the horizon, rewriting the rules for global and local communities alike. And all the time, our planet is screaming for relief from all this unchecked over indulgence.

Our valiant contenders truly stepped up to the challenge, grappling to balance complex constellations that intertwined humanity, technology, business acumen and environmental responsibility. For some, it was a struggle to keep focus, for others, a struggle

to break free, but in the end, we were treated to a rich cross section of concepts that fearlessly tackled the future head on... How can AI make human beings better? What if luggage could pack itself? What if the airport was the plane? What is an amenity kit for anyway? If I could change the face of food and nutrition, why would I just 3D print a cheeseburger? What if I could wear my seat all the time? Why stop at saving energy? What if I could change the perception of time itself?

Was I expecting to see final polished solutions? Of course not! But many of the topics and discussions that came up during this project have made their way back to our studio and are having an influence on our daily work.

Our industry is indeed approaching a threshold and we look to the bright young things to boldly step forward and light the path.

When you are embedded in an industry, it's difficult to project beyond immediate or extrapolated needs or expectations. Even advanced technology projects have detailed business analysis to justify their existence through a controlled process... analysis paralysis! As a design professional, it hasn't caused me to think differently, but rather where to place my emphasis. I really appreciate the space to cut through the preconceptions and ask the seemingly obvious questions, address the taboo topics. It's like combining the brutal honesty of children with the uniquely structured mind of the designer... It lets you get straight to the point and articulate it a way that is immediately obvious to everyone.

I wasn't exposed to the daily machinations, but what I witnessed was a big group of unique individuals, confronted with a topic of mind-boggling complexity, coalescing to a selection of unique topics, all of them relevant to the future of our industry...and they appeared to have fun doing it. I thoroughly enjoyed being part of this project: I use anecdotes and examples from it almost daily with my team in some shape or form. It has compelled me to re-evaluate how we work within our larger organization and how we may re-organise our team to focus on game-changing long term objectives.

It reinforced my resolve to focus more on context, not product or solution (that comes later). It's the key missing component within most design and manufacturing organisations. Silo mentality in endemic, driving disconnected, bottom up solutions.... but if a vision can be clearly defined and communicated in context, then it has a chance to cascade through due process: values, targets and specifications without losing it's original objective. The challenge is always aligning long-term aspirational objectives with short term operational targets.

In general every project had a degree of insight, but there were 2 in particular that stood out and are entirely relevant to the future we face in our industry: AI and how we use it to be better human beings and the printed food. Both topics: "connected cabin" and the criminal waste of food/packaging/resources on-board are directly in the spotlight right now, but are not being tackled from the "what if" perspective.

In general the technologies are known, the nuts and bolts are understood, but the future context is rarely described well. These partnerships spark the imagination and provide moments of clarity on key topics. This acts like a hook, gives people and organizations who are neither capable, empowered nor expected to "inspire" a flag to rally behind.



Photo Credits: Stephen Pover

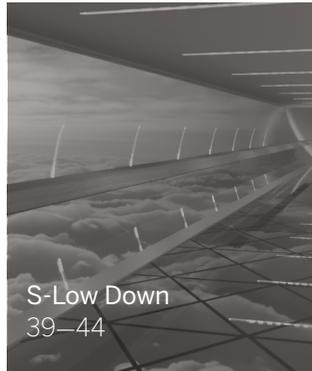
# Chapter 03 Projects —





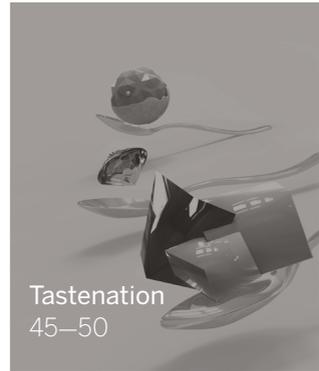
Aer  
33–38

**Aer 33–38**  
Aer is a shape changing smart luggage transportation concept.



S-Low Down  
39–44

**S-Low Down 39–44**  
New slow flight experiences will revive the magic of World travel.



Tastention  
45–50

**Tastention 45–50**  
3D printed food for a multi-sensory dining experience.



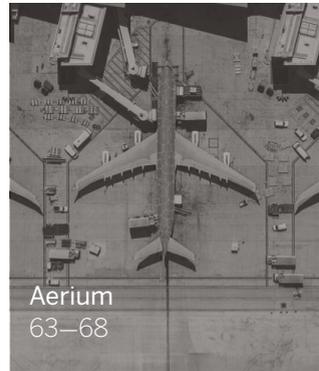
Curio  
51–56

**Curio 51–56**  
Hypersonic modular aircraft with zero emission.



Future of Luggage  
57–62

**Future of Luggage 57–62**  
Technology that de-materialises luggage for lighter travel.



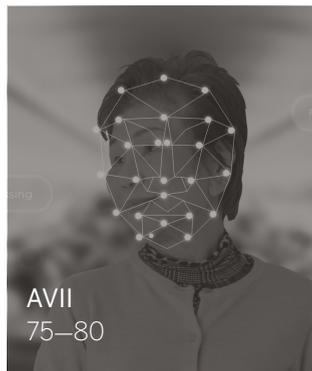
Aerium  
63–68

**Aerium 63–68**  
The future of flying is green with synthetic biology entities.



Aerwear  
69–74

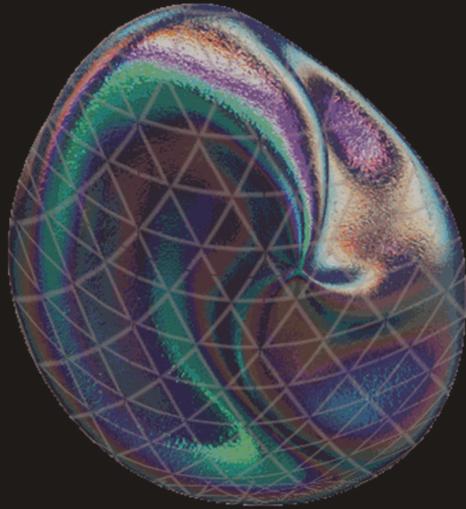
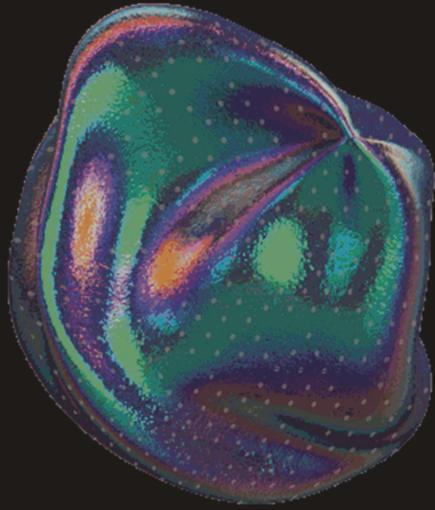
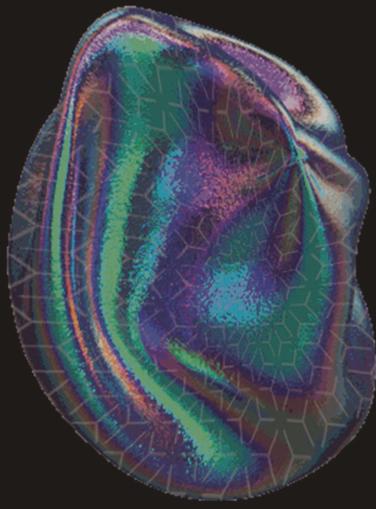
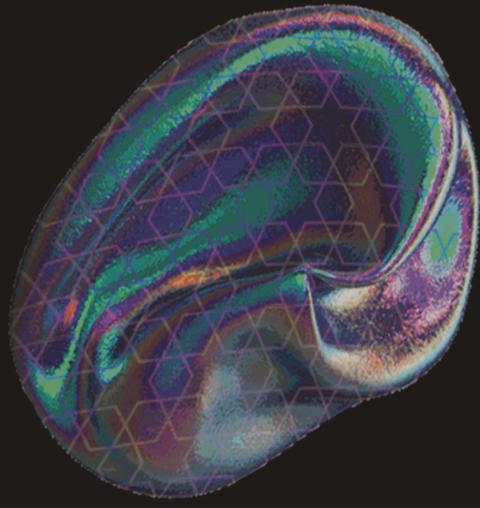
**Aerwear 69–74**  
Wearable seats to increase comfort and movement.

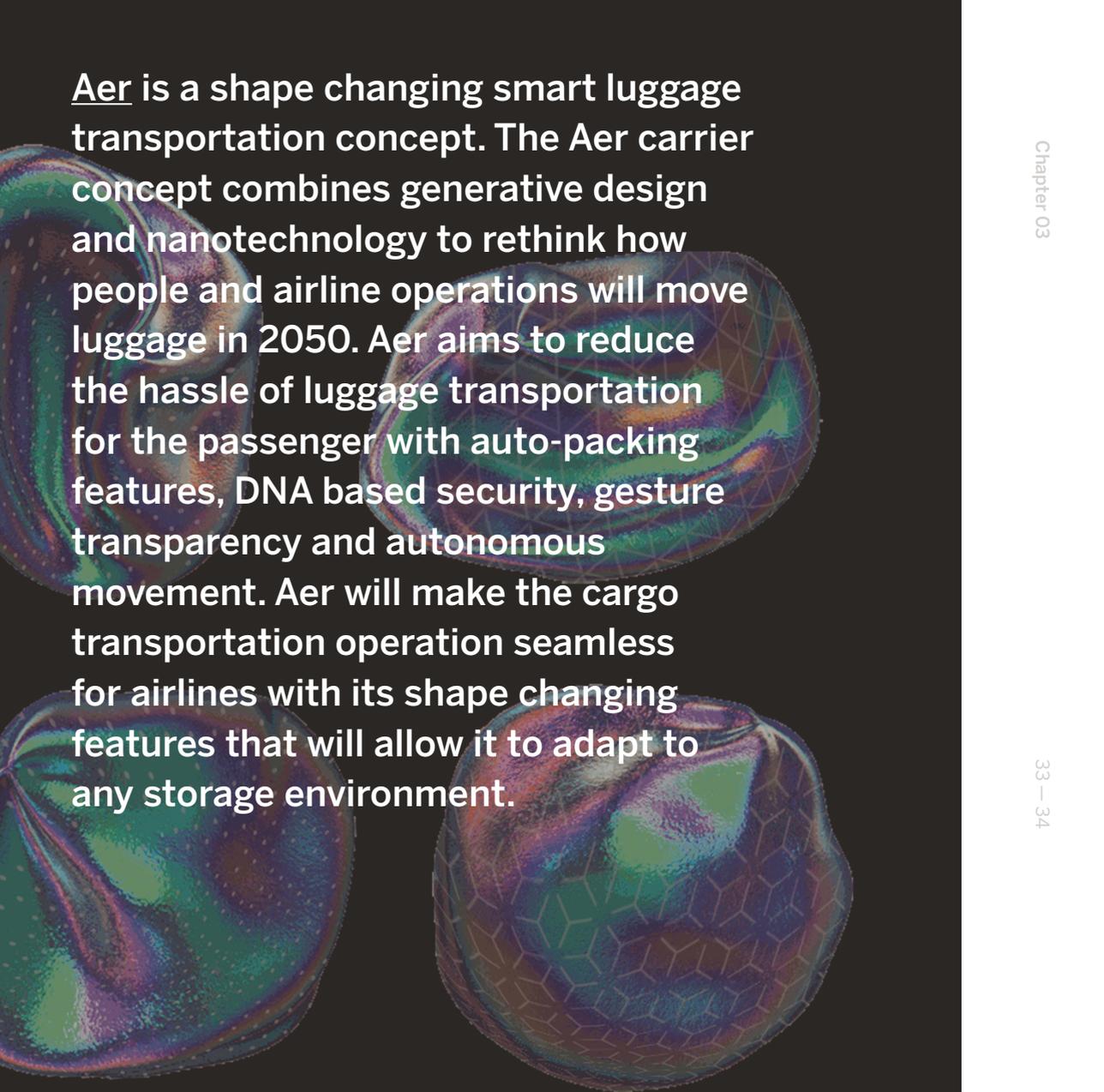


AVII  
75–80

**AVII 75–80**  
Artificial intelligent crews for hyper-personalised flights.

Aer





**Aer** is a shape changing smart luggage transportation concept. The Aer carrier concept combines generative design and nanotechnology to rethink how people and airline operations will move luggage in 2050. Aer aims to reduce the hassle of luggage transportation for the passenger with auto-packing features, DNA based security, gesture transparency and autonomous movement. Aer will make the cargo transportation operation seamless for airlines with its shape changing features that will allow it to adapt to any storage environment.

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in [Design](#)

Selin Zileli  
MhD student  
in [Intelligent Mobility](#)

Eviatar Toker  
MA student  
in [Design Product](#)

Rime Cherai  
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in [Design](#)

The World of travel is about to change quite dramatically. Where there is scope, the passenger journey will be simplified to a single touch on a screen and flying 30,000 feet up in the air will be enhanced with VR and AR experiences. However, the future of travel is still human centred as we are both a practical and emotional species. We value sentimental things and will still want to travel with these objects. Traveling with luggage can be quite a hassle involving planning, packing, dragging your bags and worrying about if they'll make it safely to your destination.

The Aer concept aims to change this. Using nanotechnology, soft robotics and bio-tech developments that are currently in their embryonic stage at various labs across the World Aer is a shape shifting and self assembling carrier. Your new suitcase will be the size of a disc and once it knows what you want to take with you it takes care of the rest. Aer technology will organize your belongings into 3 categories; biodegradable (like food), fragile and compressible (like your clothes). It will then use generative design to autonomously pack your items in the most efficient manner. Here's where it gets interesting; say bye to the lock and key, simply touch the part of the carrier that you wish to open and using a DNA scanning technology the carrier will open itself for the right owner. Maybe you want to double check that everything is inside; just run your hand over the carrier and watch the cover turn transparent for you to see all its contents. Once you're done, the carrier will transport itself to the airline pick up point and meet you at your final destination. Using its shape shifting features it will change its form, keeping all your belongings safe by adapting to the storage environment that its in. This will allow airlines to transport your luggage faster in a more secure and highly efficient manner. The best part is that you'll be able to track it along its journey like it's right there with you.

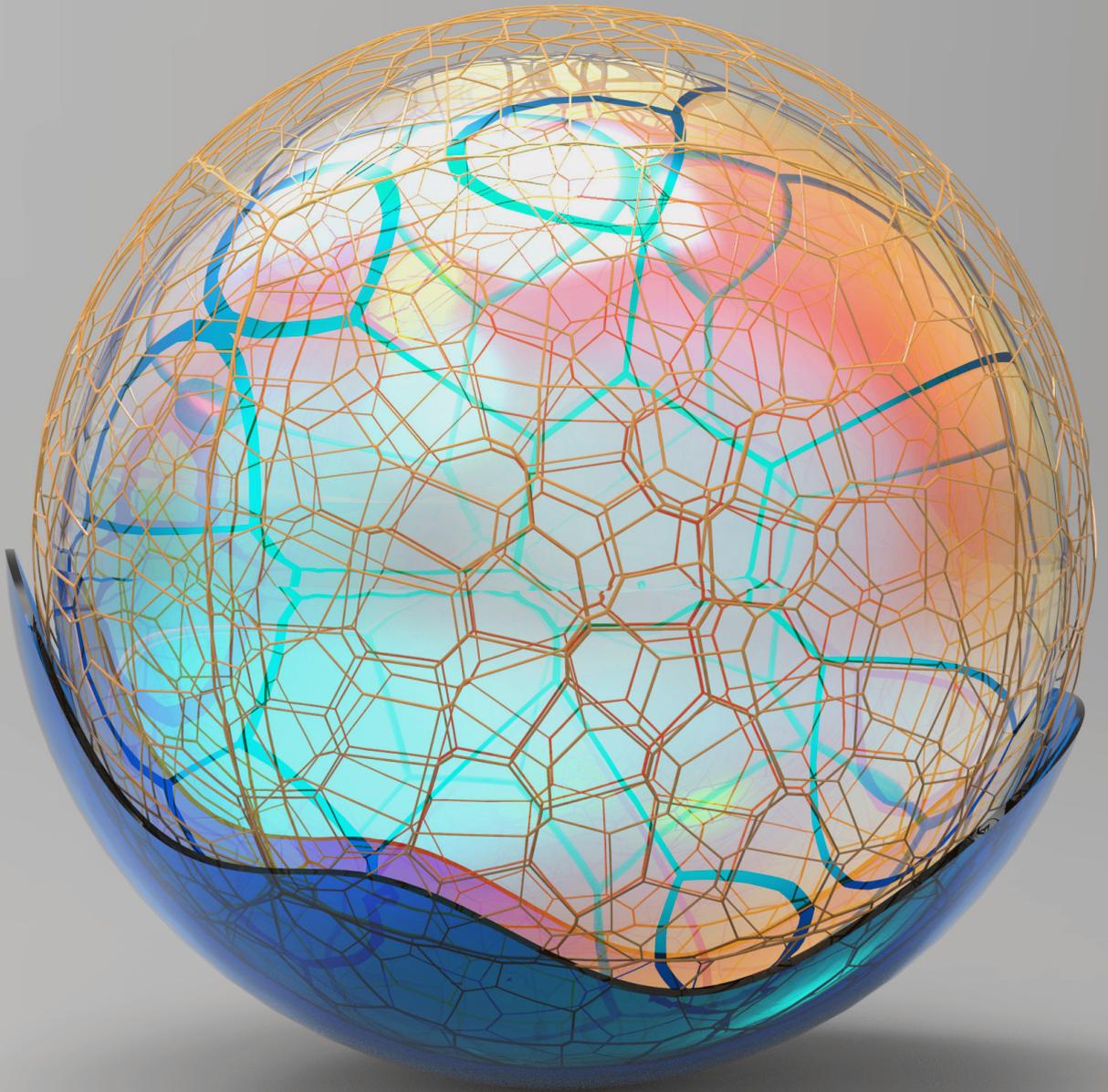
# Aer



**AER**

Aer is a shape-changing smart luggage transportation concept. The Aer carries content, combines generative design and nanotechnology to rethink how people and animals will move luggage in 2050. Aer will help simplify travel with auto-packing features, 3D-XR based security, gesture transparency and autonomous movement. Aer will make the cargo transportation operation seamless for anyone with its shape-changing features that will allow it to adapt to any storage environment.

© Aer - British Airways | Image Credit: Thomas Höpfer/Behance



# Aer



# S-Low Down



S-Low Down is a future British Airways flight experience that will address our future needs centred on wellness and sustainable living. New slow flight experiences will revive the magic of World travel, giving passengers permission to slow down and immerse themselves in experiences unique to the air.

Anteja Klimek  
MRes student  
in [Design](#)

Dan Vorley  
MhD student  
in [Intelligent Mobility](#)

Olivia Howick  
MA student  
in [Textiles](#)

Hyojin Bae  
MA student  
in [Service Design](#)

Rime Cherai  
MRes student  
in [Design](#)

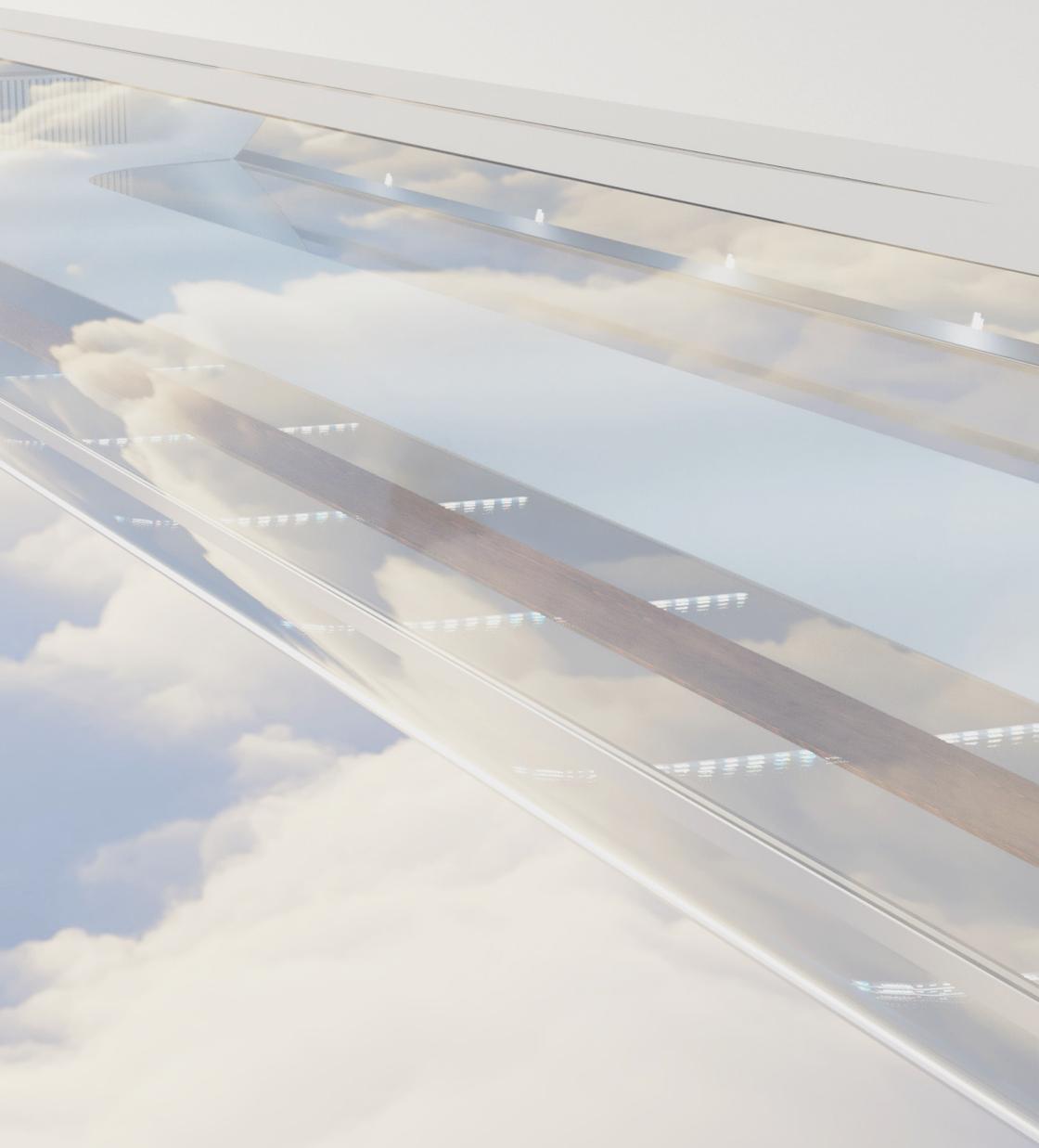
Jasmine Gilhooly  
MA student  
in [Textiles](#)

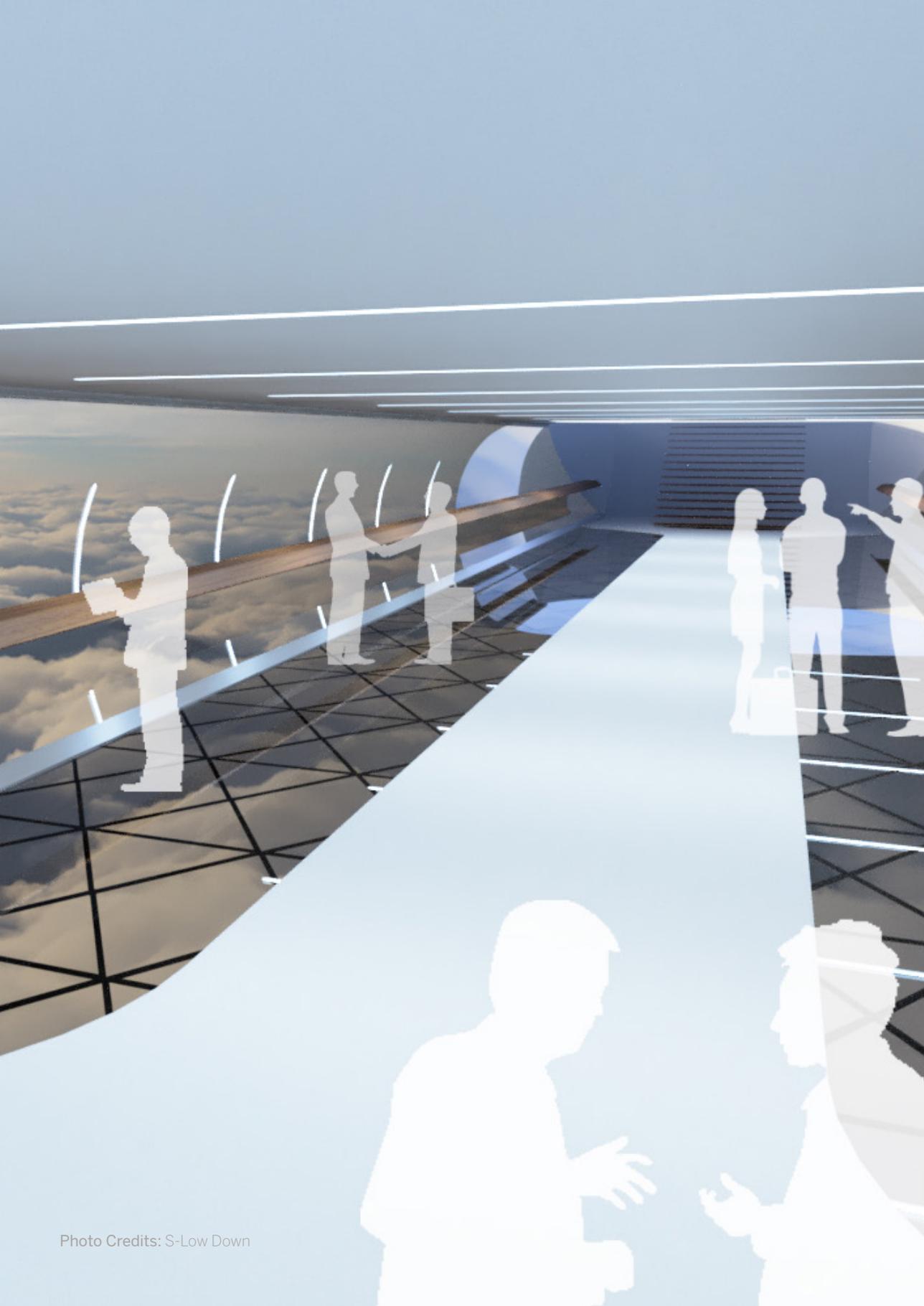
Jina Kim  
MA student  
in [Service Design](#)

As we move towards a faster, more automated society we must consider how we can preserve our wellbeing when traversing the World. Future generations will increasingly perceive health and wellbeing as the ultimate luxury, therefore there will be a need to rebalance our busy tech-led lives. In the future we will find ourselves seeking experiences that allow us to slow down, to reconnect with the planet and to take time to build human relationships.

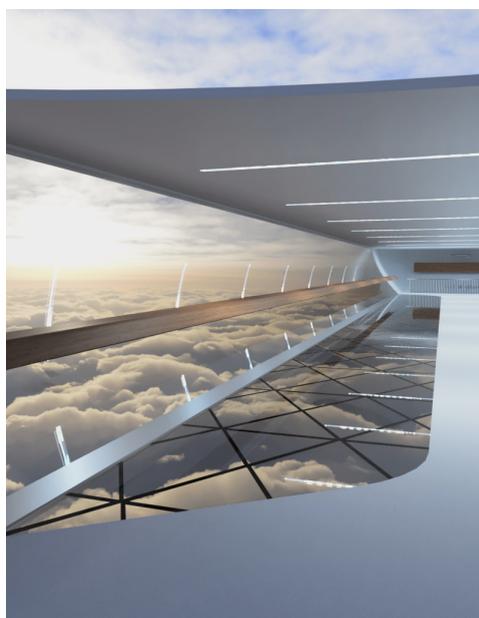
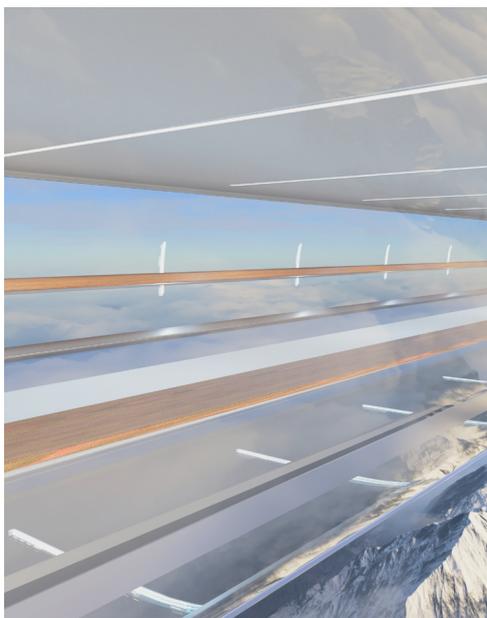
Building on advancements in hybrid low-altitude flying technologies, this experience will not only challenge future reliance on supersonic travel, but will also offer a greater sustainable alternative. Time will become our most luxurious commodity and British Airways will give passengers permission to step away from our hectic lives and enjoy the experience of seeing the World from a different perspective. The S-Low Down experience will offer passengers an opportunity to make the wonder of air-travel part of their holiday enjoying the journey as much as the destination. Passengers will be able to utilise the extended flight time to meditate, practise yoga in the clouds and spend quality time with one another in an environment like no other on Earth.

# S-Low Down





# S-Low Down



# Tastena-tion



Tastention combines DNA testing and instant body health data with 3D printed food to create a new multi-sensory dining experience, helping customers to make physical and cultural adjustment on the future flight.

Awarded  
Innovative British Airways  
Customer Experience

Anteja Klimek  
MRes student  
in [Design](#)

Hyojin Bae  
MA student  
in [Service Design](#)

Jasmine Gilhooly  
MA student  
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Dan Vorley  
MhD student  
in [Intelligent Mobility](#)

Rime Cherai  
MRes student  
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Jina Kim  
MA student  
in [Service Design](#)

Olivia Howick  
MA student  
in [Textiles](#)

Food is regarded as the universal language to connect different people and cultural environments together.

By imagining the future flying dining experience, we foresee a more physically connected World. Tastensation combines DNA testing and instant body health data with 3D printed food to create a new multi-sensory dining experience.

The highly customized food will integrate with the culture of the destination through the sense of visual, sound, smell, touch and taste. Most importantly, the food we provide will help customers to adjust their body into the best condition and energize their new journey. There are many challenges hidden behind the food experience on current flights ranging from food waste to coping with food allergies which are becoming increasingly severe. With our system, food waste on the flight will be reduced significantly. Together with British Airways, we will create a more seamless and sustainable future.

# Tastensation

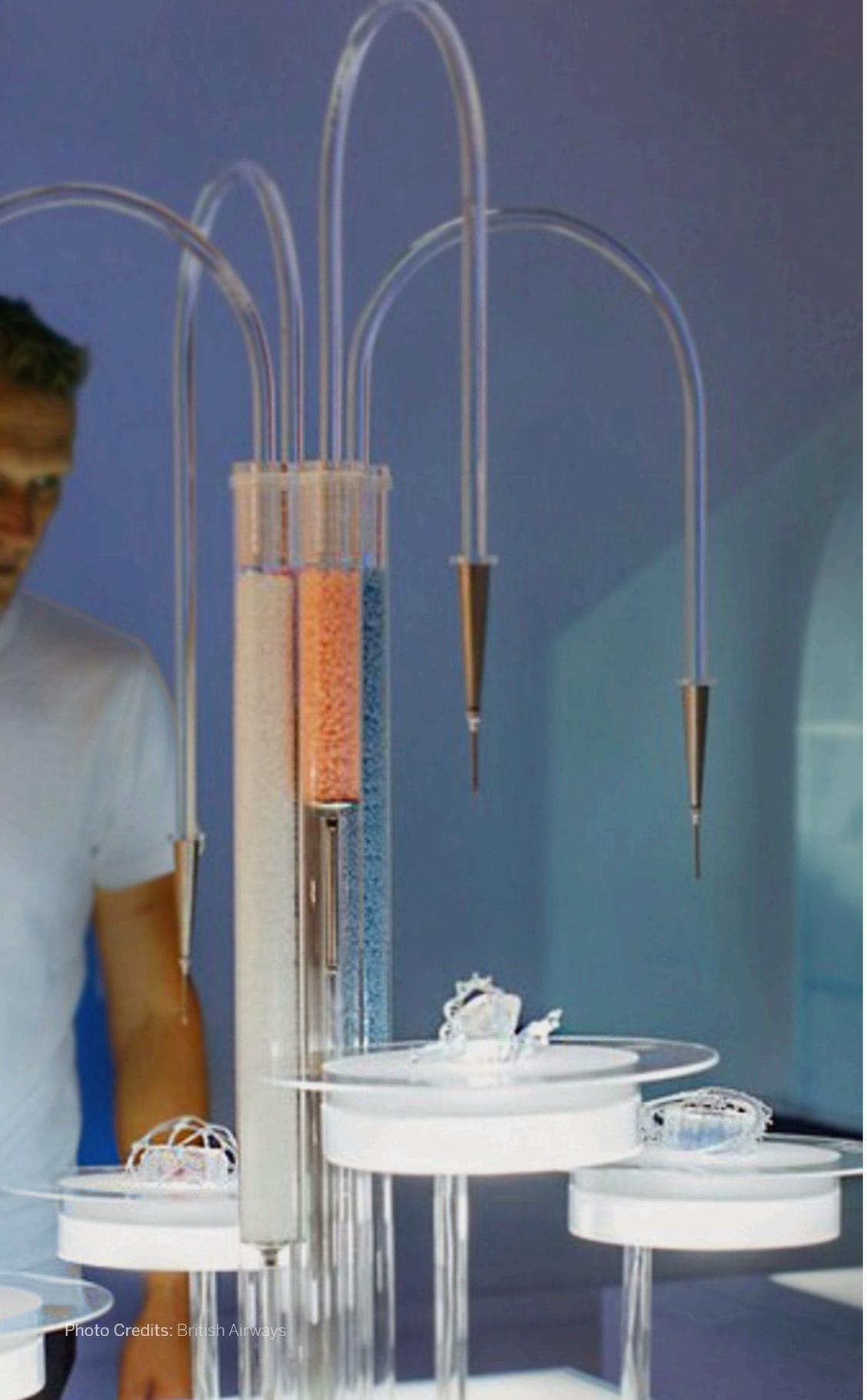
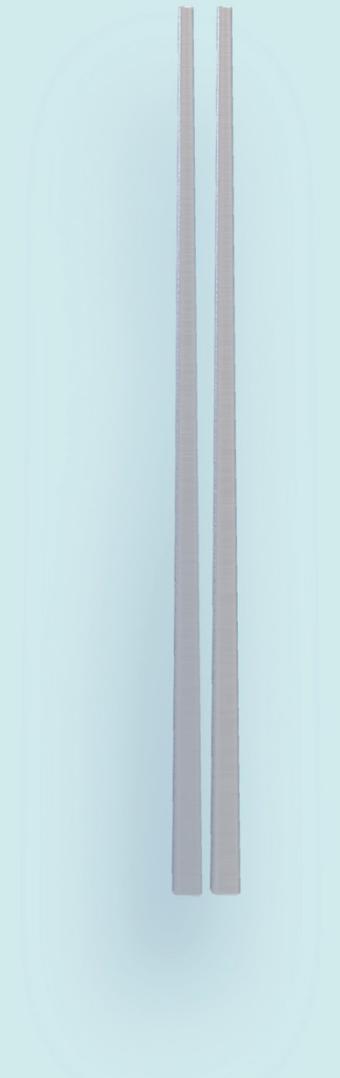
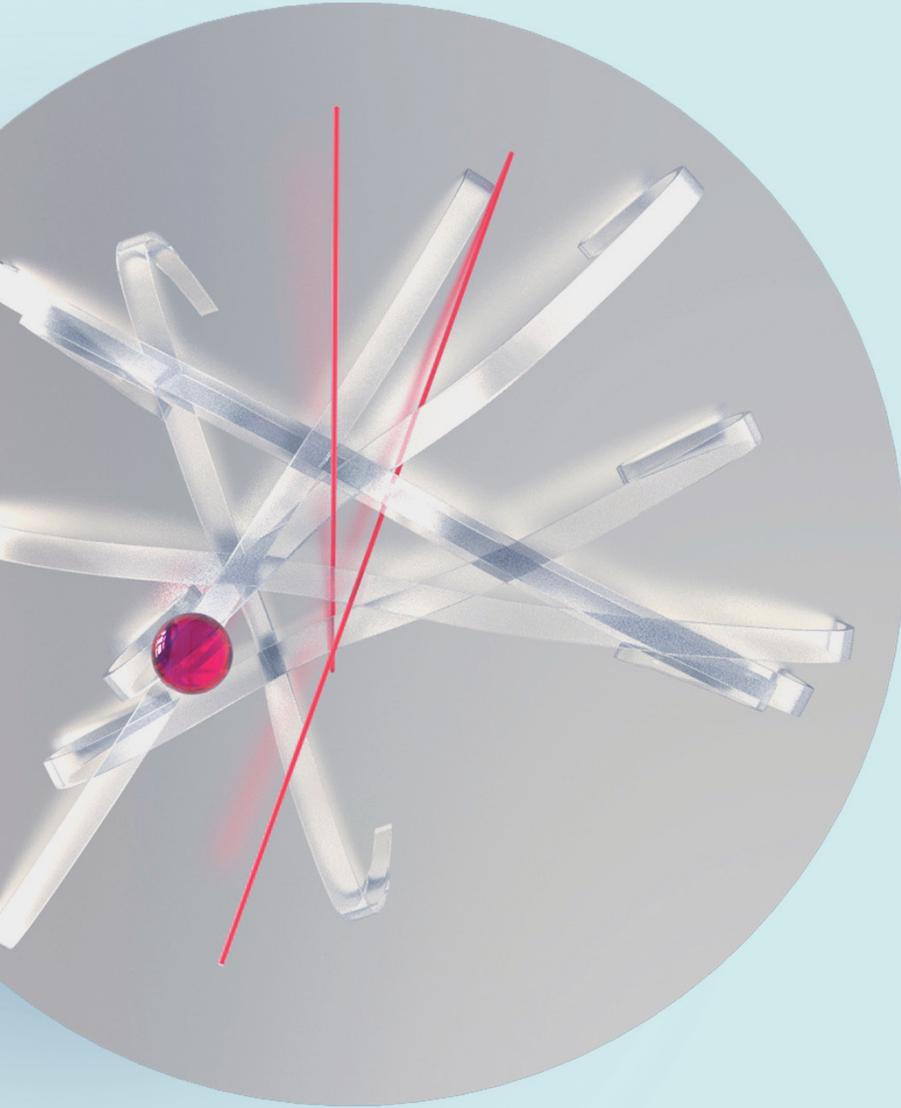
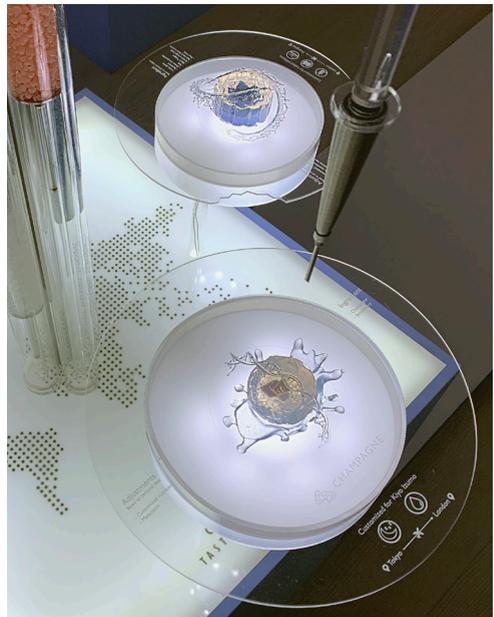
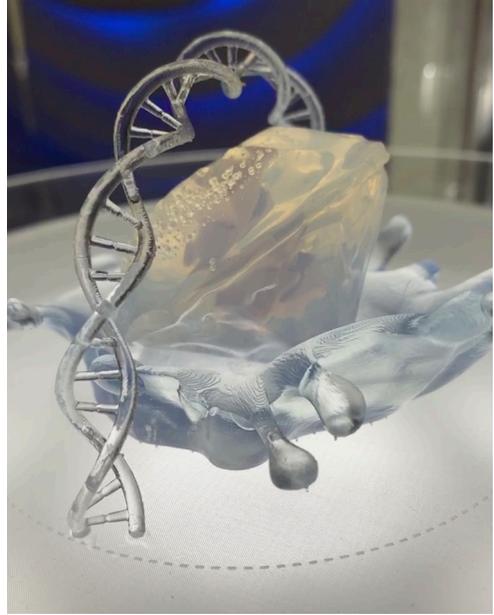


Photo Credits: British Airways



# Tastensation



Curio



**British Airways Curio can fly you swiftly and comfortably to desired destinations. The hypersonic modular aircraft with zero emission unbinds the current unforeseen delays and discomfort. Curio's state of the art interior and bespoke service not only enhances the in-flight experience but also reshapes the possibilities of aviation.**

Awarded  
Inspiring Creative  
Future Vision

Roc H Biel  
MA student  
in Design Product

Diana Daoud  
MA student  
in Architecture

Sne Tak  
MA student  
in Textiles

Nikhil Tupe  
MhD student  
in Intelligent Mobility

Ruiqi Zhang  
MhD student  
in Intelligent Mobility

British Airways Curio presents a travel experience as emancipated and efficient as a murmuration of Starlings.

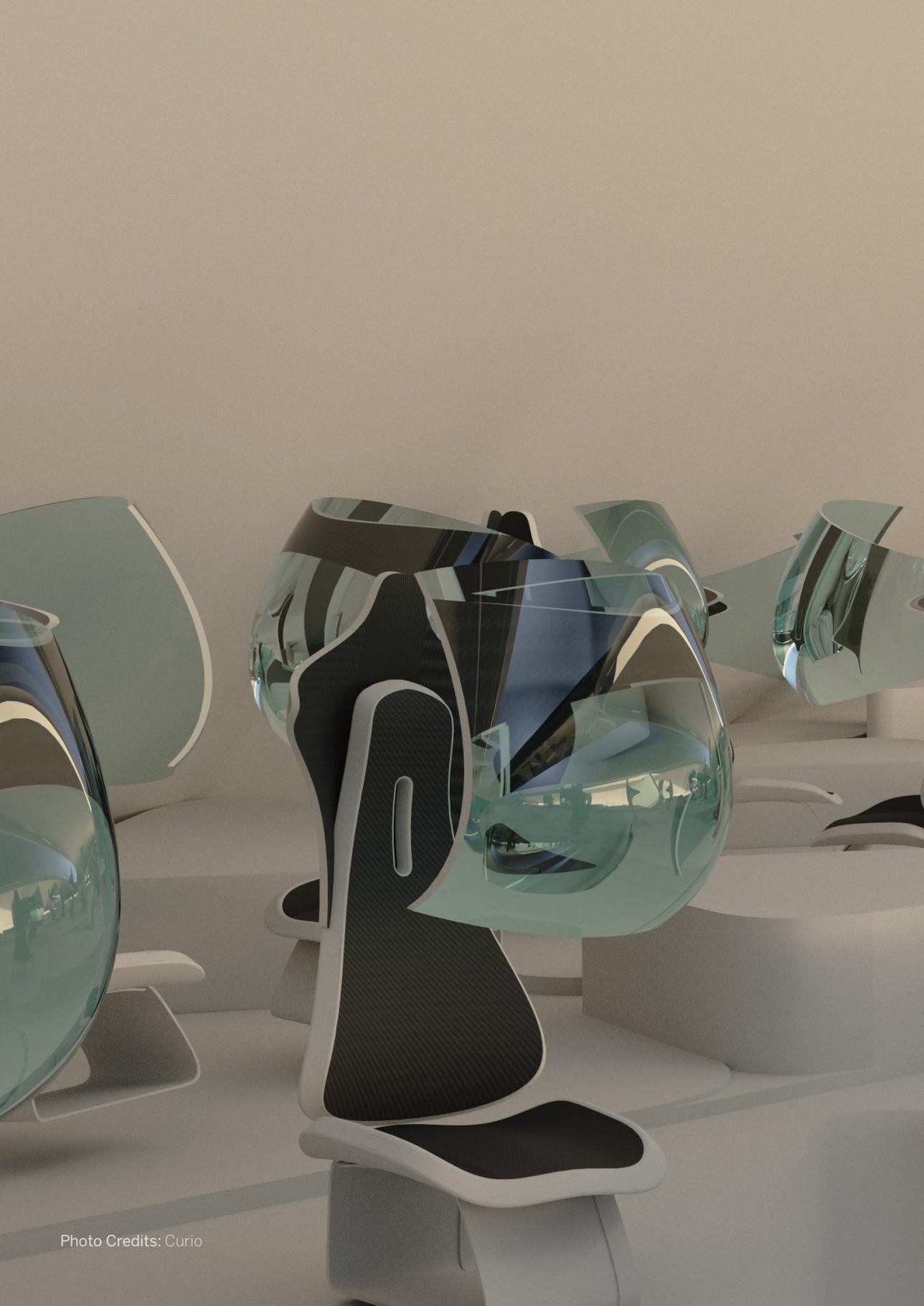
In 2119, multiple global megacities will appear, and this phenomenon will increase the abundance of personal wealth. Innovative technologies, lighter and sustainable materials, zero emissions and smart censored interfaces will be a part of everyday life. We have always had a thirst for the unknown, and people in the future will continue to travel for curiosity and connections.

With hypersonic Curio, the adventure of your lifetime and more quality time with loved ones will be effortless. By boarding the hypersonic modular aircraft and flying at an altitude of 100,000 ft, destinations once considered impossible will be within reach swiftly and comfortably. The combination of modular components and interior provides a bespoke flying experience for each traveller. Choice of four voyager profiles reduces current unforeseen discomfort. The only required action is to unwind in the optimal seat that constantly reshapes to the body statistics and postures.

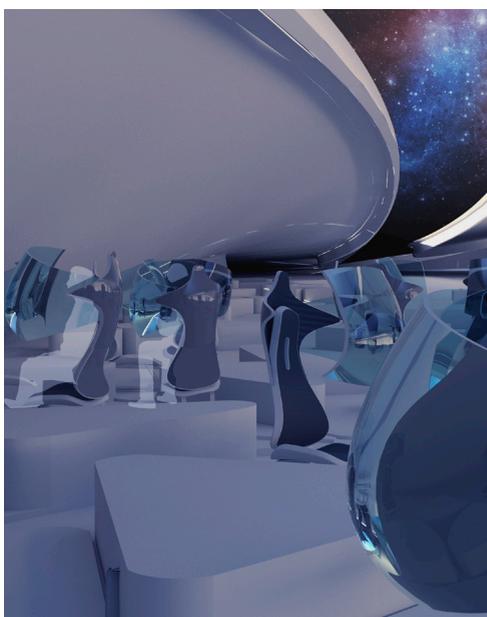
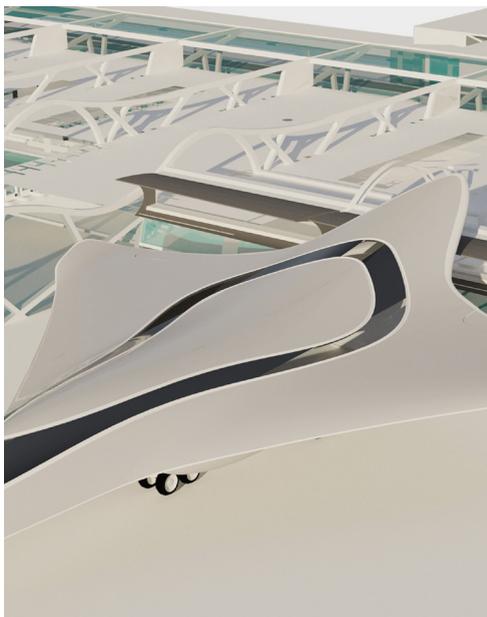
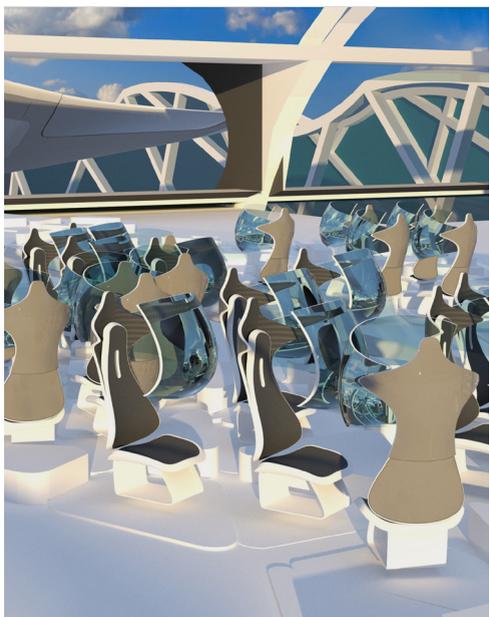
Beyond boundaries  
British Airways Curio

# Curio

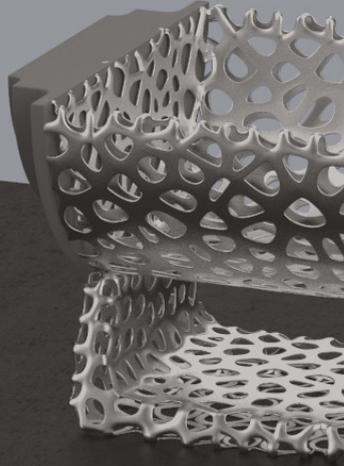
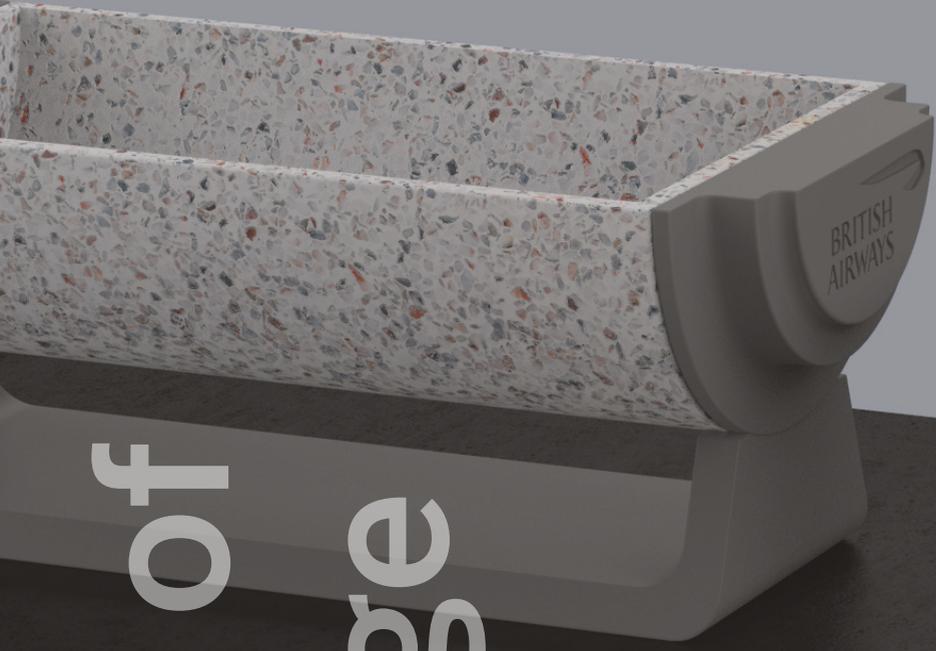




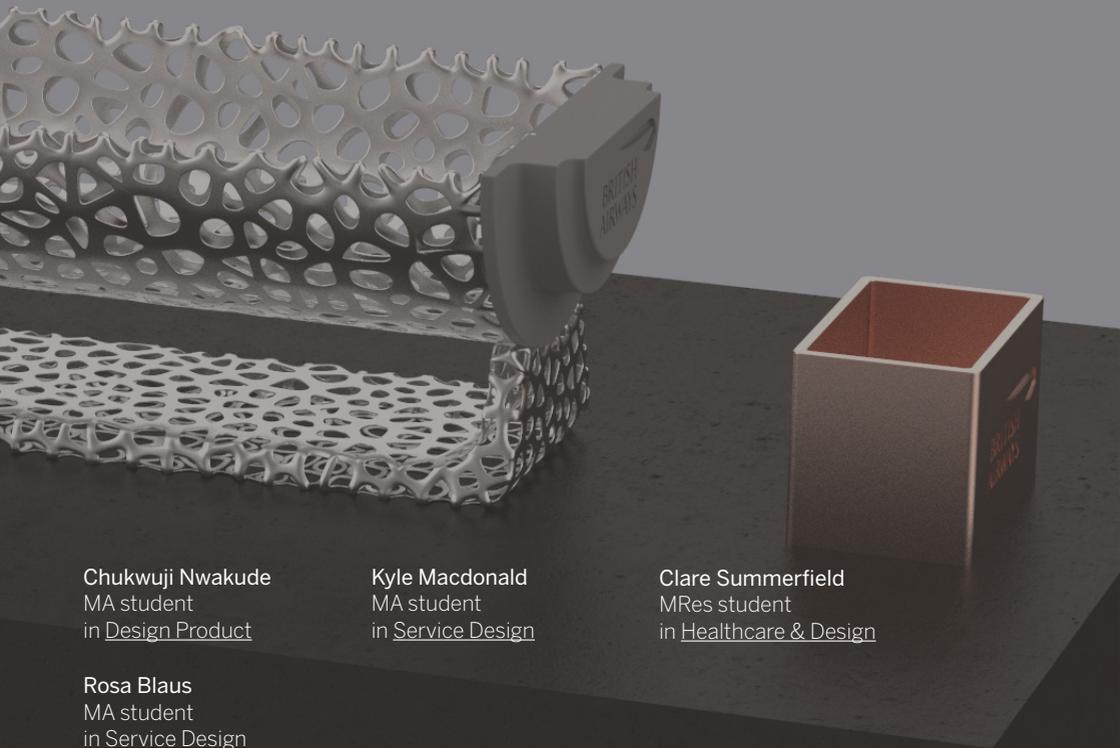
# Curio



# Future of Luggage



How will traveling experiences change over the next 30/60/90 years of flying? We envision that in the next 100 years passengers will be carrying less and less personal items as technology will be able to de-materialise objects.



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Rosa Blaus  
MA student  
in [Service Design](#)

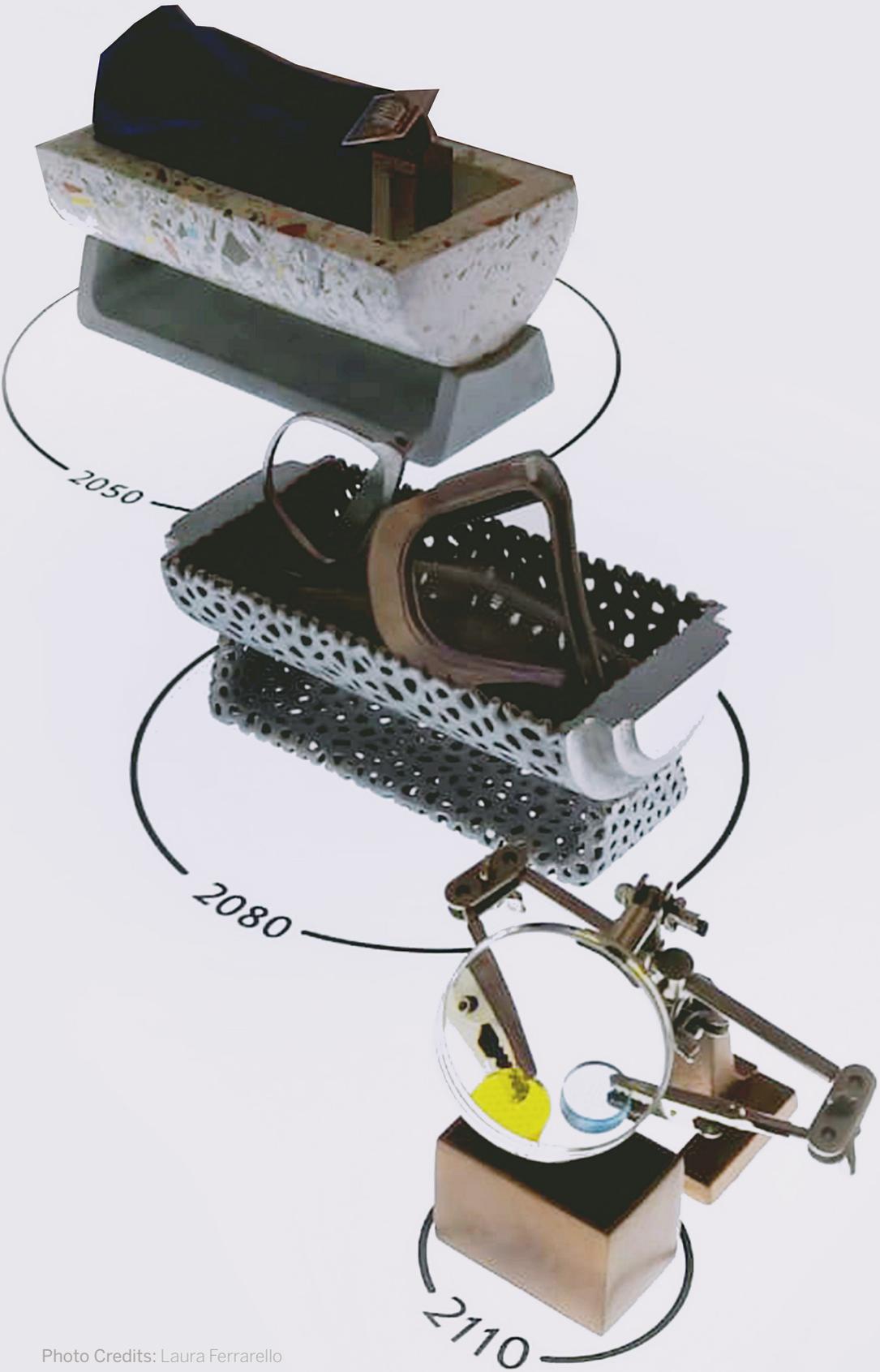
As new technology and new services are developed, the opportunity for passengers to become free from their luggage arises. The three time capsules decreasing in size display how content changes with emerging technologies transforming a range of different aspects of flying. In 30 years, premium passengers will be liberated from their luggage by commissioning bespoke tailored suits to be made at their destinations.

Passengers are measured in the airport lounge, and tailors at the destination alter the suits, reducing the need to carry large suit bags.

By 2079, this process will be democratised, and all passengers will 'upload' their measurements to a digital wardrobe. The service will suggest clothes based on the weather, length of stay and suggested activities, and passengers will receive their outfits on arrival, printed using recyclable materials. Before they go back home, customers drop their clothes back at the airport, where they are broken down and the material can be used for the next passenger.

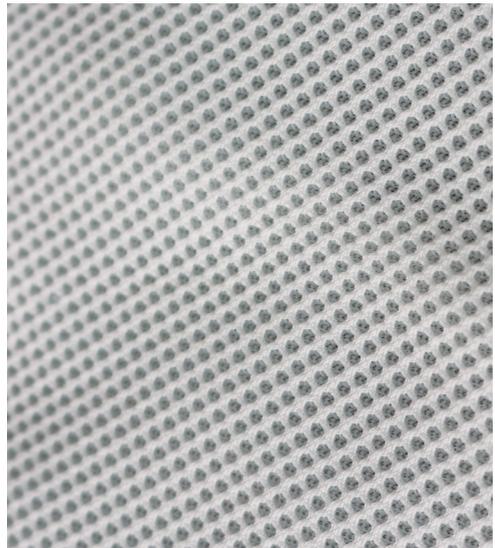
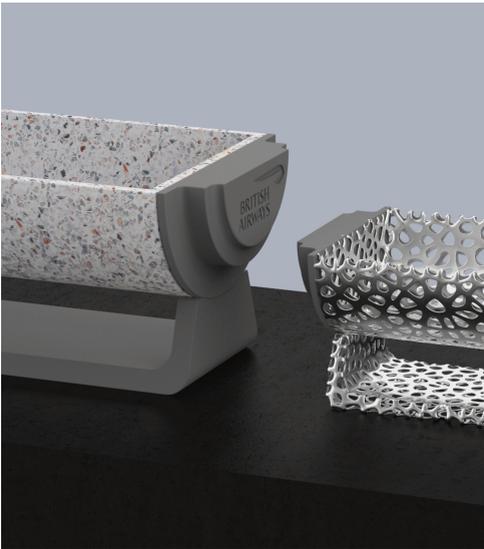
In 90 years, pixelsuit wardrobes will be able to mimic materials digitally, calibrating the illusion of clothes, without the need for 3D matter. This completely removes the need to carry clothes.

# Future of Luggage



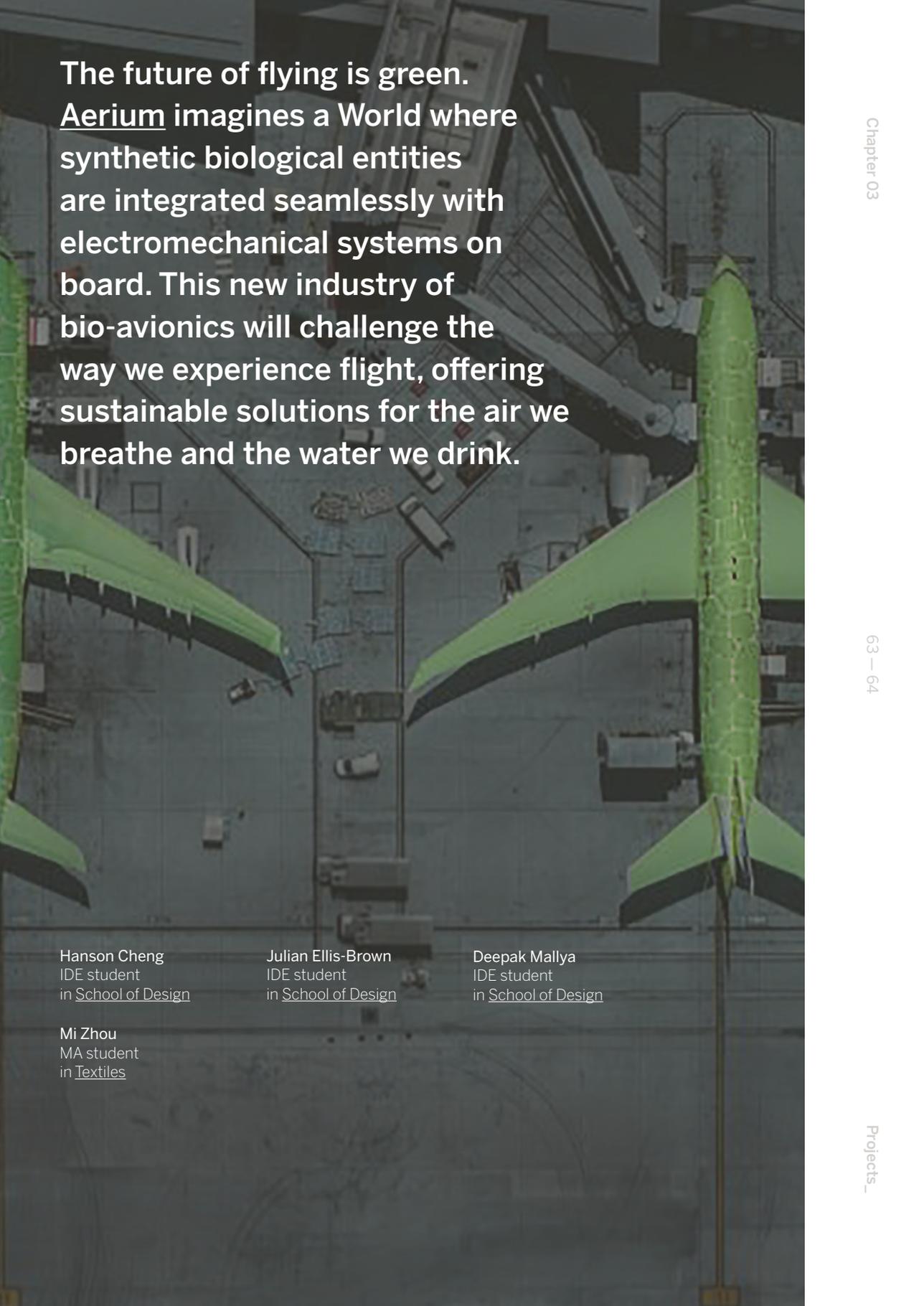


# Future of Luggage



# Aerium





The future of flying is green. Aerium imagines a World where synthetic biological entities are integrated seamlessly with electromechanical systems on board. This new industry of bio-avionics will challenge the way we experience flight, offering sustainable solutions for the air we breathe and the water we drink.

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IDE student  
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Julian Ellis-Brown  
IDE student  
in School of Design

Deepak Mallya  
IDE student  
in School of Design

Mi Zhou  
MA student  
in Textiles

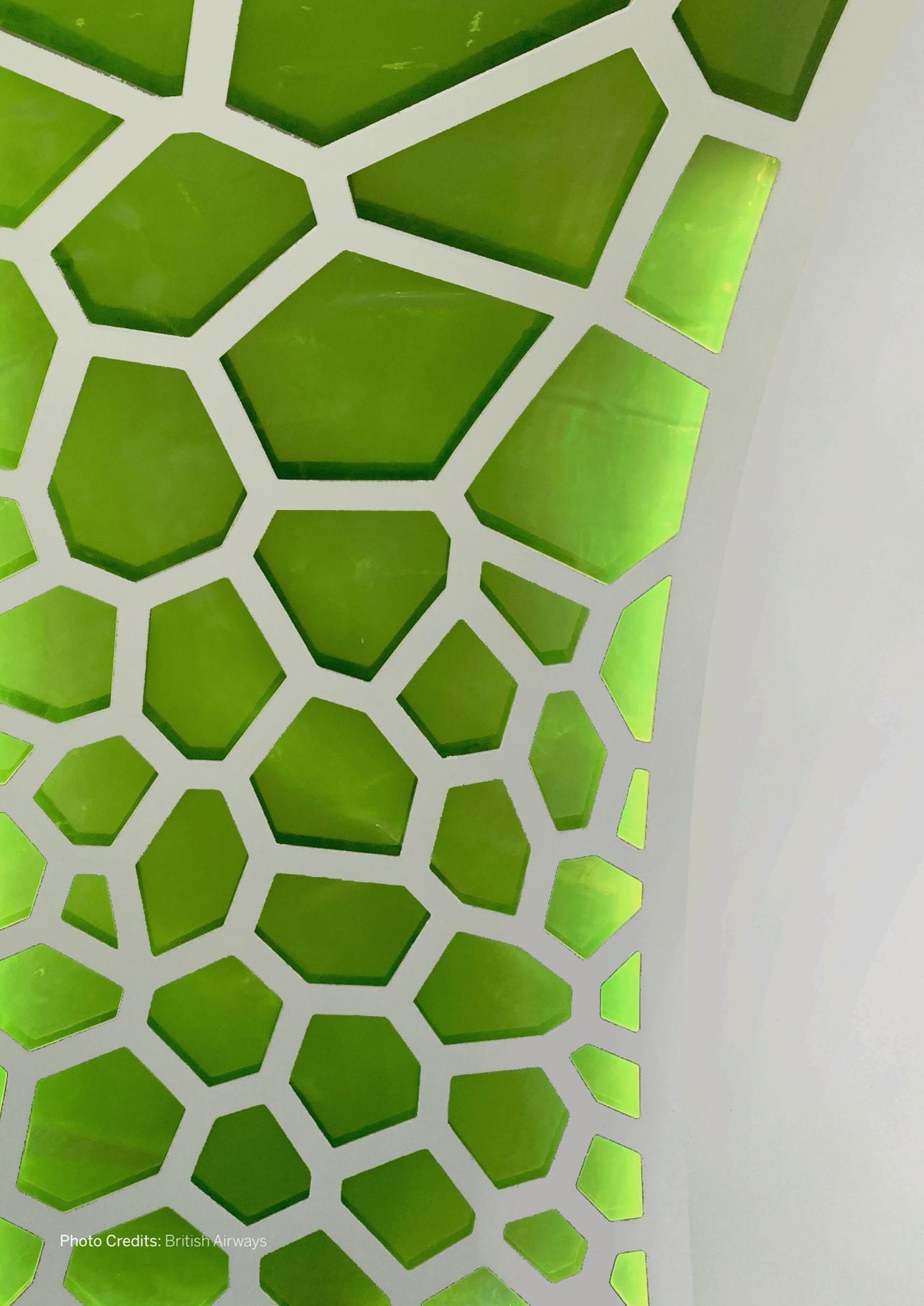
Recent developments and investments in synthetic biology, biotechnology and genetics have made the design and production of biologically based systems more precise than ever. These developments show great promise in a bid to counter the adverse consequences of our actions on the environment. The new field of bio-avionics integrates biological systems alongside electromechanical ones on board to hint at how that might impact our future experience of flight.

Introducing Aerium. A multi-layered cabin structure that focuses on three systems: hydration, energy generation and oxygenation. The first is a bio-polymer coating on Aerium's outer micro structure. This responsive material harvests moisture and condensation from the clouds and guides it towards the rear of the plane providing on-board grey water, drinking water use, and humidity control in the cabin. The next layer is a computationally generated skeletal structure that minimises weight whilst maximising strength, enabling fuel savings for each flight. Finally, synthetic chloroplasts, extracted from Algae are suspended in graphene matrices to generate electricity and clean rich oxygen. The organelles take light, CO2 expired from the cabin, and water to create cool clean natural oxygen and generate electricity through photosynthesis. The energy generated is then used to power various passenger needs, reducing stress on the primary fuel source. With the two systems, we imagine a future where planes become fuel cells on the ground when in-operational, supplying excess clean water, air and energy for airports.

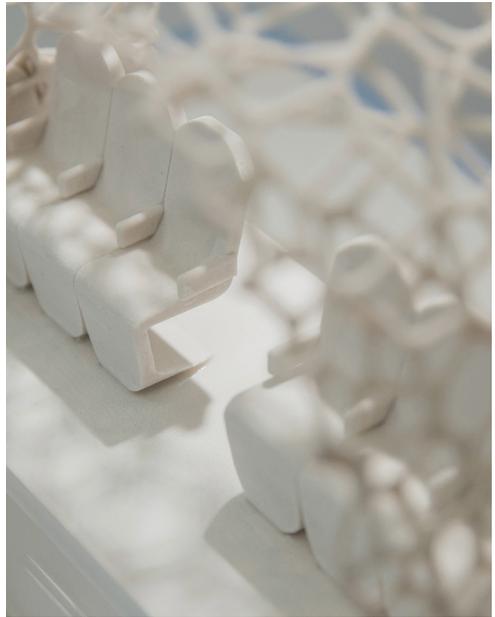
# Aerium



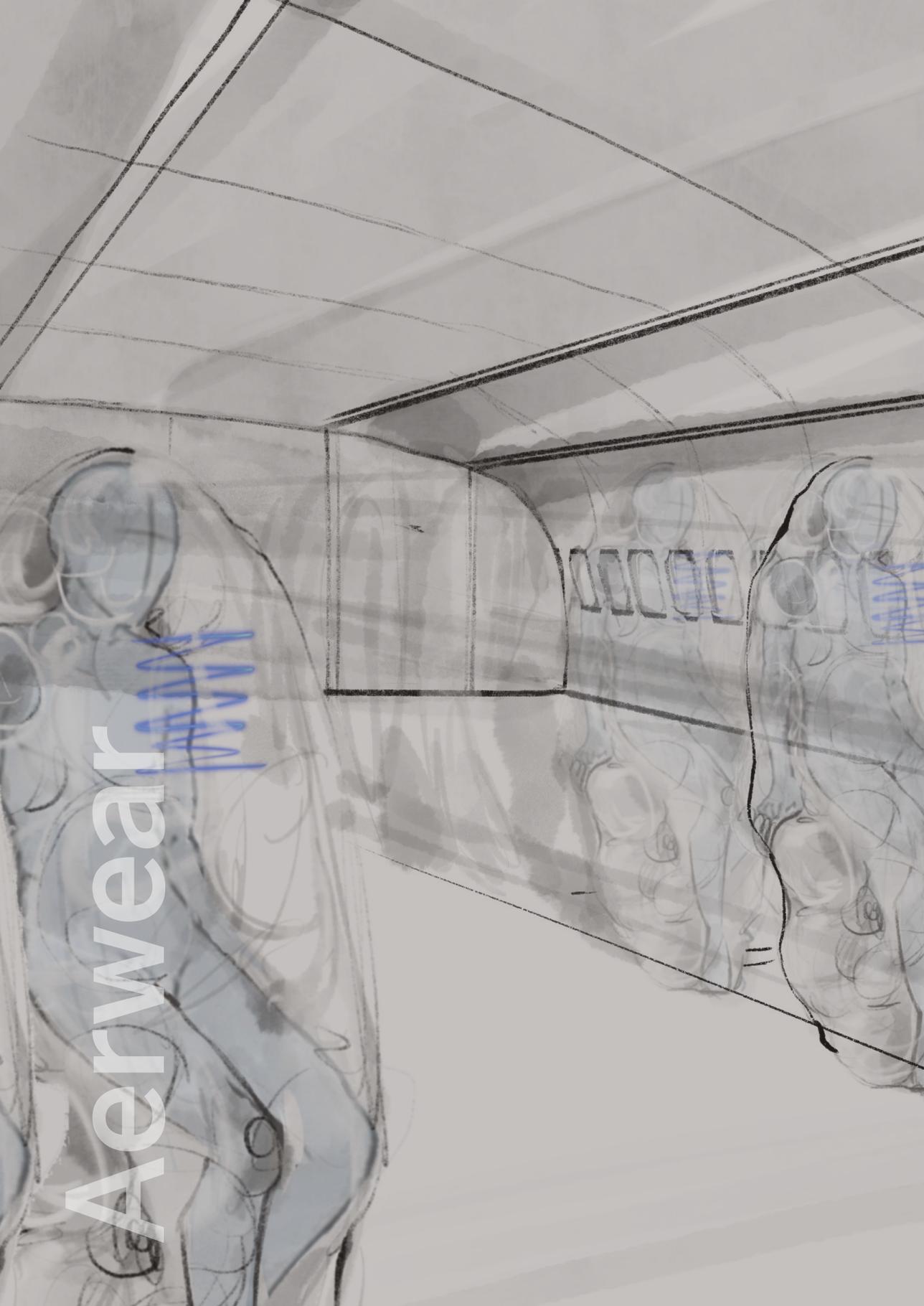
Photo Credits: British Airways



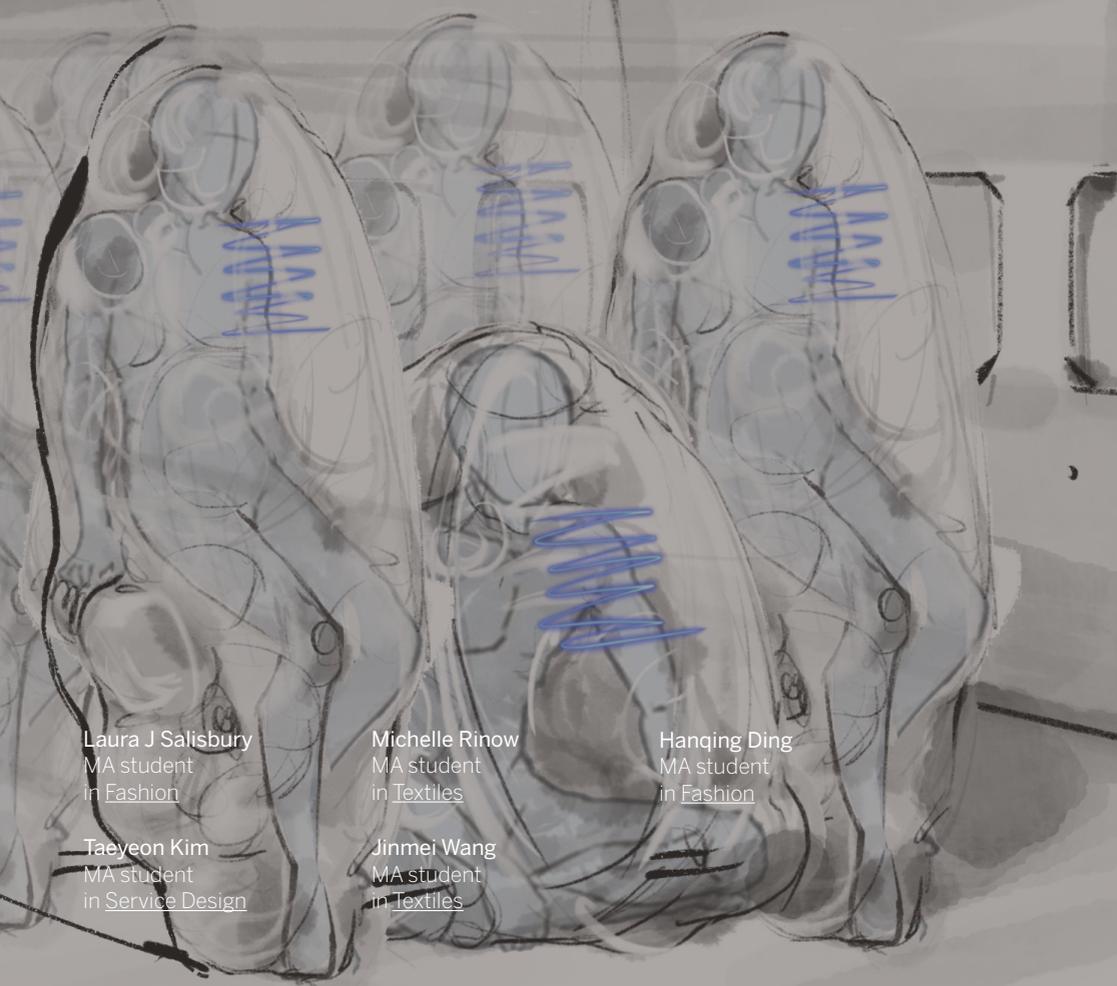
# Aerium



# Aerwear



This project investigates the dialogue between the body and the seat, questioning what it means to be seated whilst flying. Aerwear is a wearable seat that increases passengers comfort, freedom of movement, well-being and experience during flight.



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MA student  
in Fashion

Michelle Rinow  
MA student  
in Textiles

Hanqing Ding  
MA student  
in Fashion

Taeyeon Kim  
MA student  
in Service Design

Jinmei Wang  
MA student  
in Textiles

Aerwear imagines a future of wearable seats that grow and move with the body, adjusting to accommodate comfort and greater freedom of movement during flight. We imagine a future material that is 'light as air' that can support and protect the body. Moving away from the mechanical nature of the aircraft towards more human and organic movement and materials that accommodate human behaviour. The idea of the seat becomes questioned; What happens when our seat comes alive and moves with us? We question the very idea of a seat pre-determining a specific rigid posture when our bodies are continuously moving.

How can the aircraft respond to our behaviours? Aerwear provides a more custom experience with options for total privacy or social experience, accommodating the individual traveller or group needs by morphing or remaining as individual bubbles. Where the bubbles are transparent to open up space, they also provide functions that allow the light to be distorted that can provide a more private space to sleep in for example. The smart bubbles are able to sense your body's needs and so expand and contract to place your body into the ideal position, reducing stress on the body and improving wellbeing during flight. Due to the nature of the bubble, it prioritises safety during flight, as it is able to form a protective barrier by wrapping around the body. During take-off it replaces the humble seat-belt, securing you on board, and in times of emergency, acts as a protective air bag or suit when evacuation is required. The movements of this future wearable seat imagine a more human-centred flight, turning the focus to people, their needs and experience.

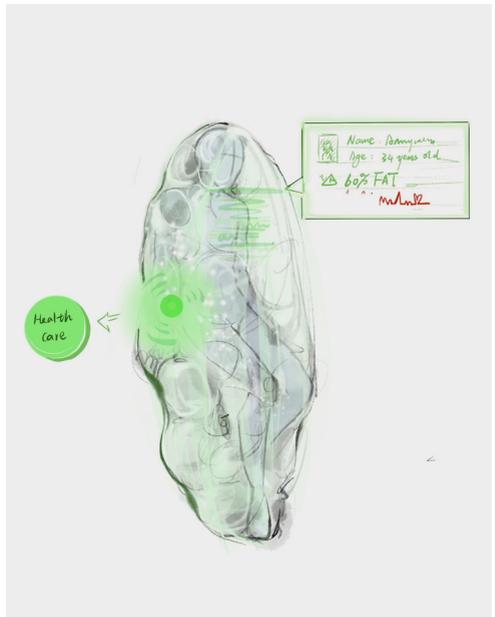
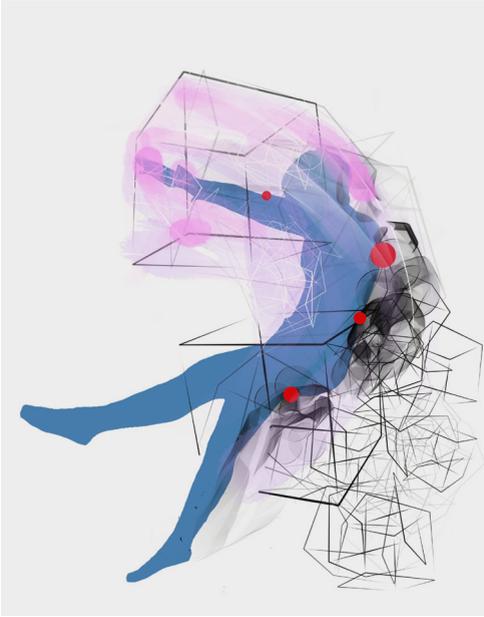
# Aerwear

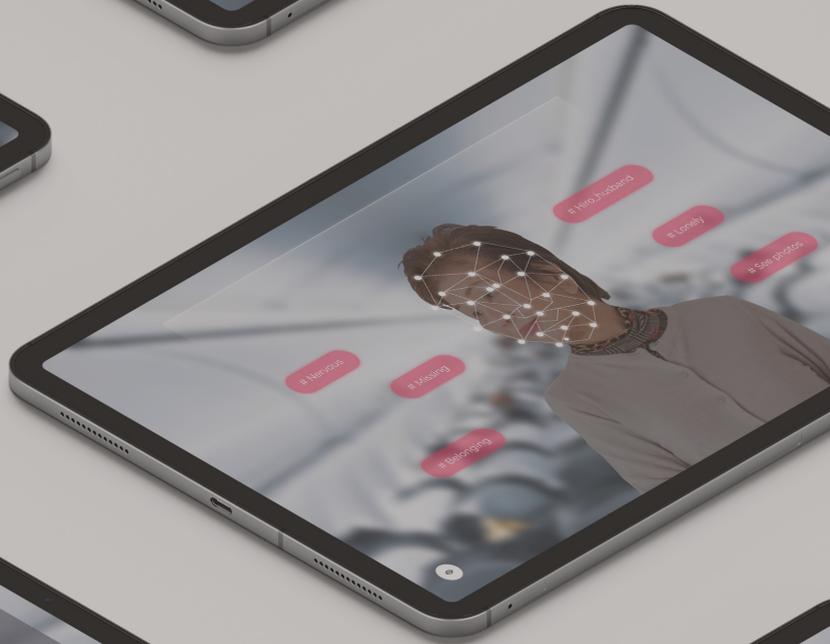




Photo Credits: Laura Ferrarello

# Aerwear





AVAIL

The project aims to improve passenger's experience through deep-understanding of their needs and issues in an aeroplane with artificial intelligence collaboration between robots and human crews. The AI, AVII will read the voice of passengers by data collected by robots and suggest human crews to provide hyper-personalised services.

Awarded  
Disruptive Innovation

Hyejin Lee  
MA student  
in Service Design

Sicong Xiao  
MRes student  
in Design Research

Xiujin Li  
MRes student  
in Design Research

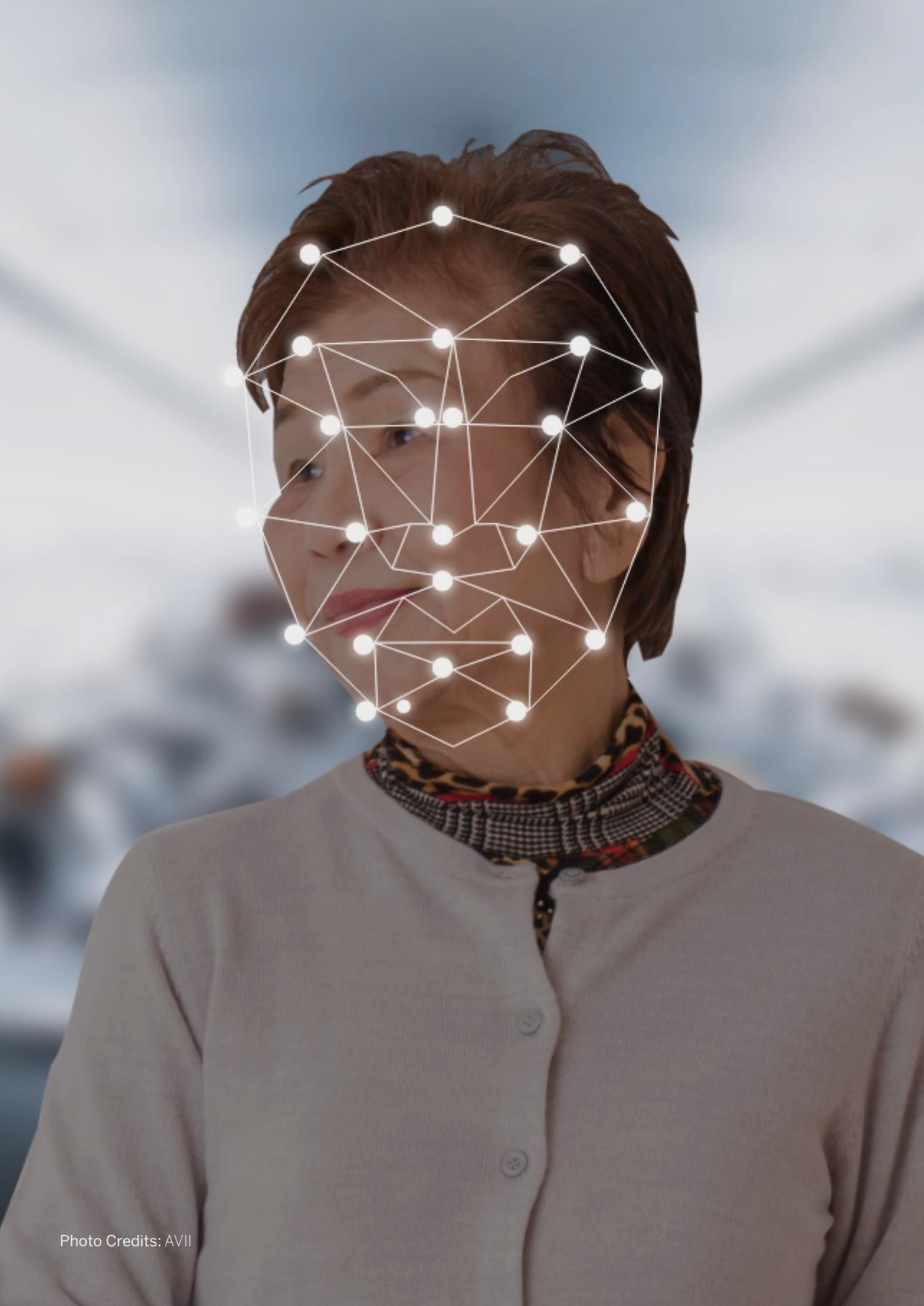
Yi Lu  
MA student  
in Textiles

In our rapidly changing World, is the future society utopia or dystopia? Technologies are now and everywhere. As technology advances, our lives become better; however, does this mean that our wellbeing and relationship with each other are getting better? Cultural barriers, super aging and generation gaps, conflicts are increasing. People are addicted to technologies, speak less to each other and over-trust Artificial intelligence rather than humans. We are pushing ourselves to become hidden and isolated behind technologies, aren't we?

In 2040 British Airways reads and responds to the inner voice of passengers. The future passengers can be anyone regardless of barriers whether they are physically or technologically challenged. Introducing AVII as a personal AI steward who reads the voice of passengers to understand their needs and pains, responding to people on a human level and creating proactive and hyper-personalised services. AVII can understand what passengers want and suffer from now and forward the physiological data and emotion analysis creating personal suggestions by linking the data, profile and context. This allows AVII to enable human crews to build a closer personal relationship with passengers and provide comprehensive care and facilitate effective collaboration between robots and humans. The interactive and fulfilling experience which shows the deep empathy of British Airways crews will touch passengers and help them to get smooth initial steps in a new place, mitigating tensions and concerns. Are you ready to be served by AVII?

# AVII





# AVII

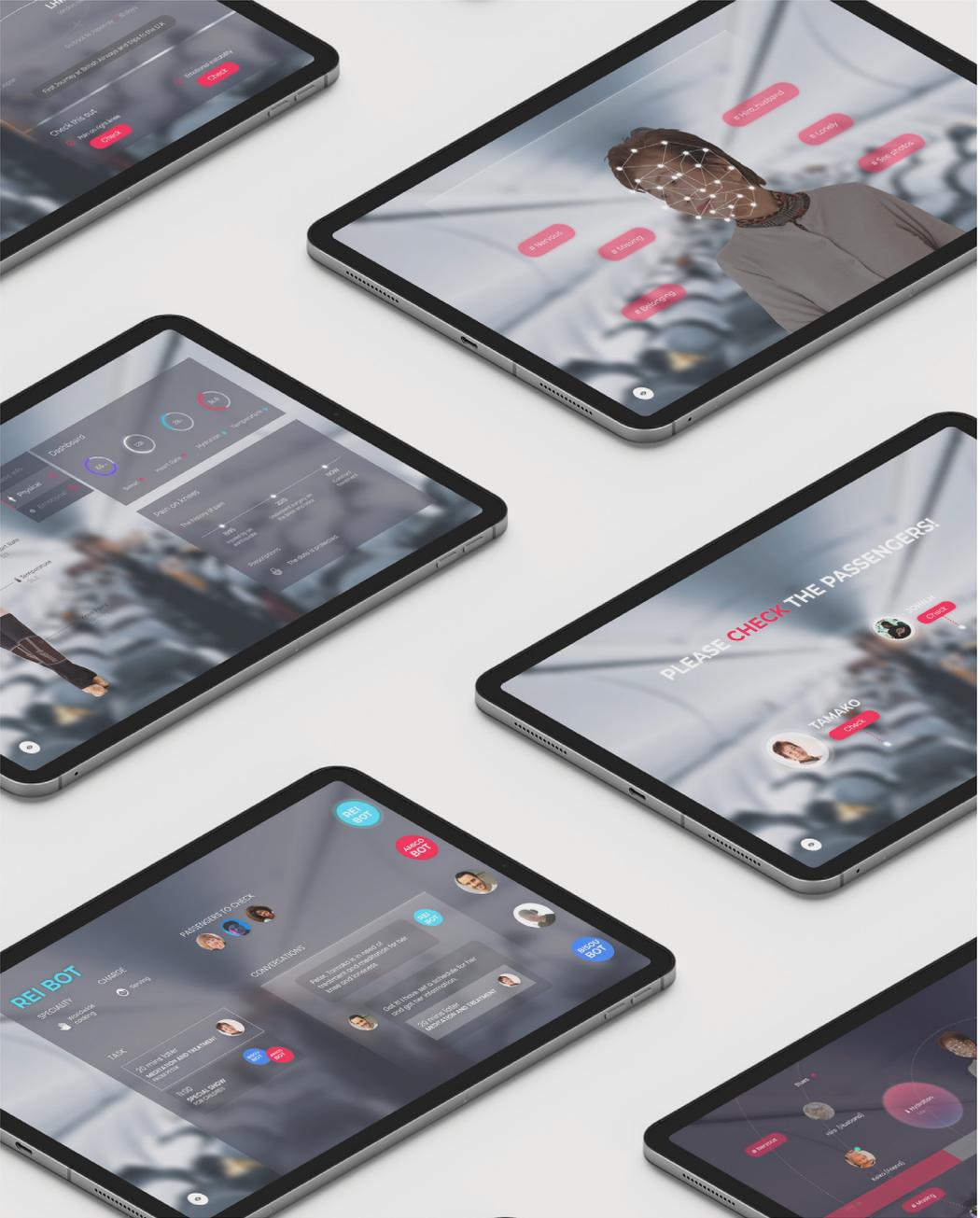


Photo Credits: Laura Ferrarello

# Chapter 04 Gallery





## Project Development 83—84

### Feedback Presentations 83—84

The students present their initial ideas to a panel of industry experts.



## Saatchi Gallery 87—88

### Saatchi Gallery, London 87—88

RCA showcases the Flight of the Future outcomes at Saatchi Gallery, London.



## Shanghai Future Lab 89—90

### West Bund Art Centre 89—90

RCA takes Flight of the Future to Shanghai's Future Lab for exhibition.

# Project Development

Feedback Presentations  
April–August 2019

The 8 groups of students from the School of Design, present their initial ideas to a panel of industry experts over a series of weeks—gathering feedback and valuable industry insight, before selecting their final area of focus.





# Designing a Future that builds from the Past & Present

Dr Laura Ferrarello  
Project Leader

BA 2119: Flight of the Future has been exhibited in London at the Saatchi Gallery between the 1–26 August and in Shanghai at the Future Lab, West Bund Art Centre, between the 25 November – 1 December 2019. These exhibitions showcased the 8 models, prototypes and demonstrations (of 8 groups of 38 interdisciplinary RCA postgraduate students) developed to imagine the experience of flying in the next 100 years.

At Saatchi, the exhibition used the present (what we know about flying, and the future; what flying will be) as curatorial guidelines that its visitors could engage with—by stretching their imagination towards forthcoming scenarios. These aimed to communicate how, in the future, the experience of packing, boarding, eating, transferring, entertainment, etc. will be transformed and redefined by embracing new technologies (3D printing, nano-tech, and bio-materials), social values (sustainability, care, and wellbeing) and social transformations (future of work, human relationships with AI, robotics, generative design, and soft robotics).

Even though the exhibition illustrated how current cutting edge technology can develop breakthrough innovation in the airline industry in the next 30, 60, and 100 years, the projects' ambition was to express the social value of flying—including how people imagine exploration and traveling.

'Visitors imaginary air travel' was the theme of a curatorial journey with the intention to communicate—by building from those actions and rituals people are already familiar with. Through a series of different shaped blue plinths, visitors could learn that in the near (or far) future, packing will no longer be something to worry about—as generative algorithms will help pack the luggage for us ([Aer](#)) and/or deliver/produce our clothes and belongings directly to our destination ([Future of Luggage](#)). In the flight of the future, food will be customised around our DNA (to adjust to our circadian rhythms and immune systems) and the country of destination ([Tastenation](#)). In 100 years, seating will be so 21st century—as a soft robotic and responsive bubble will support our body ([Aerwear](#)). The Flight of the Future will see a creative and effective collaboration between AI and cabin crew to aid in looking after passengers' invisible needs (like stress, anxiety and fear) ([AVII](#)). Offsetting carbon emissions will be an obsolete strategy to tackle climate change. Flights will be able to clean the air and produce power—using synthetic biological entities, combined with electromechanical systems ([Aerium](#)). We will also be flying in 'slow mode', in order to enjoy the view, socialise, make friends, and perhaps, do yoga while flying ([S-Low Down](#)).

In 100 years, seating will no longer be ruled by class breaking groups of friends and families apart. We will be flying bespoke (i.e. according to the profile we choose—which includes: reason for traveling, our destination and entertainment preferences) (Curio). In other words, in the next 100 years, flying will be a different kind of experience, that'll bring back the excitement of discovering our planet, and learning its cultural diversity, heritage and biodiversity!

BA 2119: Flight of the Future engaged visitors' imagination by flying through a multi-sensorial exhibition—in which the mind and body had the opportunity to touch, imagine, hear and smell what flying in the future could be in the next 100 years (if not less!).

The Shanghai Future Lab exhibition was an opportunity to discuss, amongst a different kind of audience (college students, staff and researchers across the globe), the themes and issues developed and visualised by the 8 models, prototypes and demonstrations. Despite the context of the exhibition being 'different', the continuity between the present, and future, was kept as the main overarching agenda—in which this particular scenario was aimed at representing (i.e. the social impact of interdisciplinary design and innovation strategy to tackle complex issues and social challenges through design research). The BA 2119: Flight of the Future concepts and ideas illustrate how the RCA, School of Design approaches postgraduate education and research, and what kind of opportunities students across culture, background and

gender, can develop throughout the course of their study to help define themselves, their career, life motivation and future aspirations. The 8 black stripes (running across the 9x10 meter space) unfolded and conveyed the continuity between educational, and professional, development—through the images and videos designed and developed by the students. The exhibition was then an opportunity for the College, School of Design, and its students, to demonstrate the value of education through creativity and risk.

In conclusion, the RCA curated two exhibitions where the theme of exploration was developed as a meta-narrative aimed at constructing an immersive journey that visitors—across age, gender, culture and profession—could enjoy; whilst learning something new about the opportunities our present can develop to make traveling by air a sustainable, people-centred, and educational exploration of the World.

The themes these exhibitions displayed draw back to the time the industry began (100 years ago) to remind us—through a kind of skeuomorphism approach—of the motivation human beings have had, still have, and will continue to have, to travel by air. This was articulated when tackling design issues like: pollution, waste, stress, etc. to draw a future, that deploying the present, constructs a kind of society in which human values (and the development of jobs, businesses and skills) are aware of the inner desire humanity has to discover and explore.

# London Saatchi Gallery

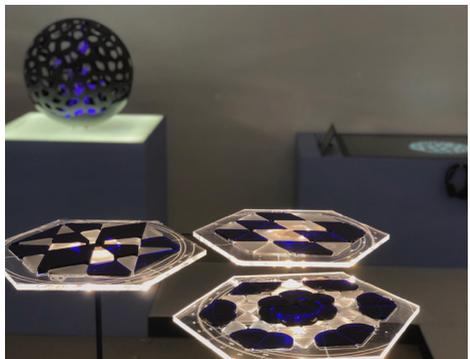
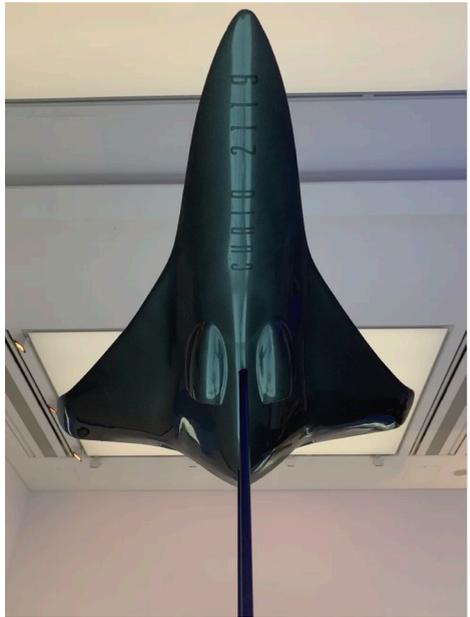
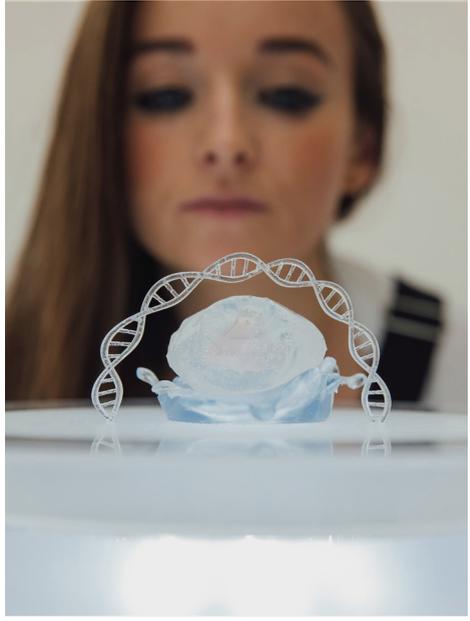
Saatchi Gallery, London  
1–26 August 2019

The exhibition brought forward innovative ideas which explored the future of flying, with particular focus on jet propulsion, hyper personalisation, automation, AI, modular transport, sustainability, health and entertainment.

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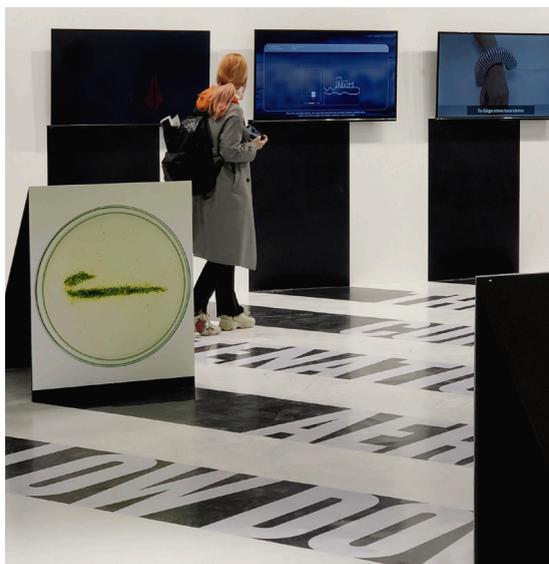
# Shanghai Future Lab

West Bund Art Centre

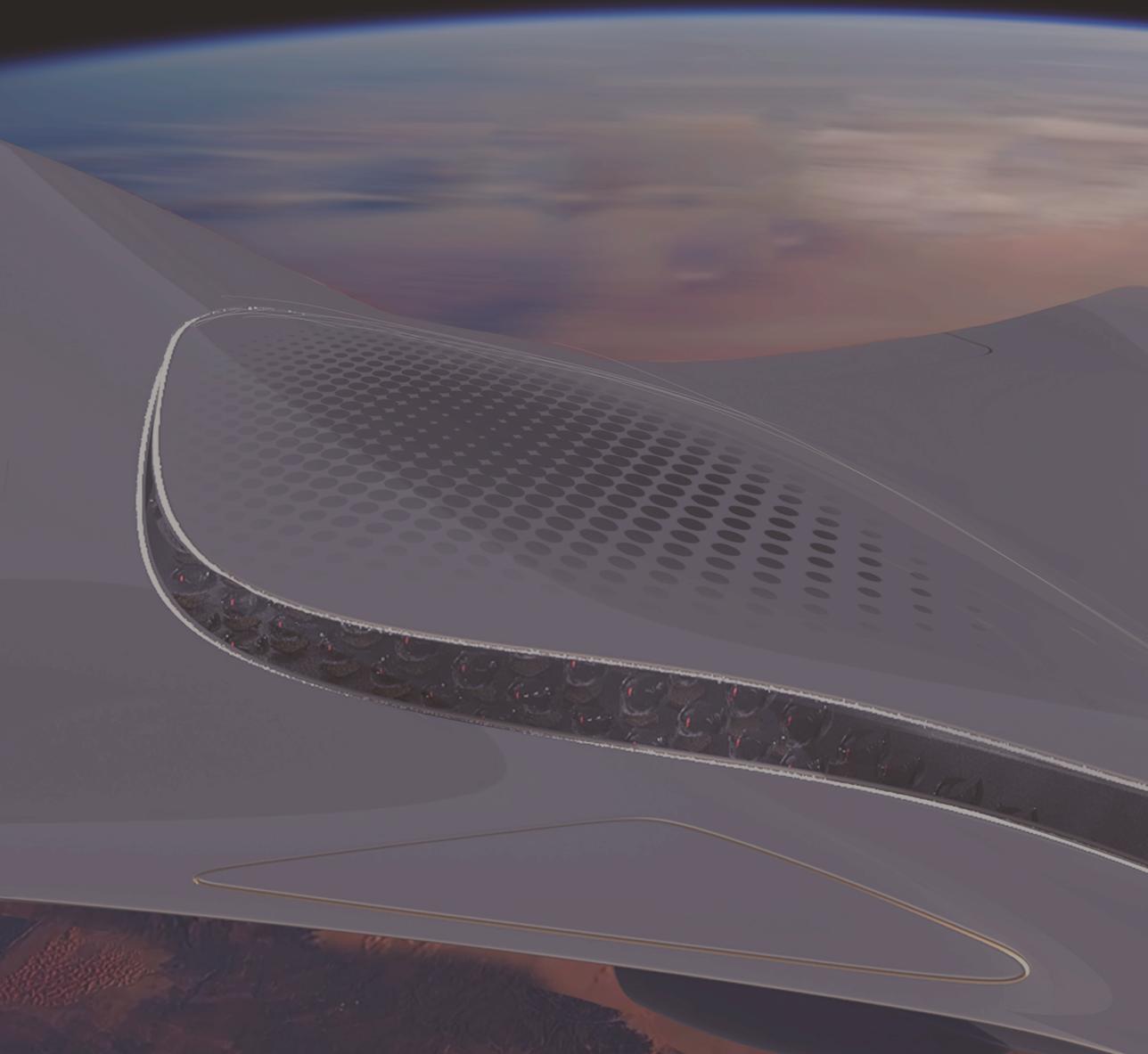
25 November – 1 December 2019

Featuring design proposals from students across RCA to imagine flight in 100 years time, the event showcased the multi-dimensional relationship between teaching and learning, fostering dialogue for the future of flying.





This report documents the BA 2119 The Flight of the Future project which was completed in August 2019, prior to the 2020 Covid-19 pandemic.



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