BOSE

Bose AR

D E S I G N   G U I D E L I N E S

Version 1.0

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01 | WHAT IS BOSE AR?

Bose AR

Bose is enabling developers to make a sound first approach to augmented reality. Through an innovative combination of head movement and spatial sound capabilities, you can create new experiences that compliment the user of new Bose AR-enabled wearables finding their way to millions of users starting in January 2019.

Bose AR SDK

The SDK allows mobile applications to pair with a new generation of Bose wearables and headphones, including the recently announced Bose Frames (link to Bose Frames page). Using raw sensor (accelerometer, gyroscope), head orientation, and gesture data, you can create new experiences for users based on interactions like head gestures for UI or raw IMU data for a variety of applications.

The SDK includes native iOS libraries and code samples, with support for Android coming soon.
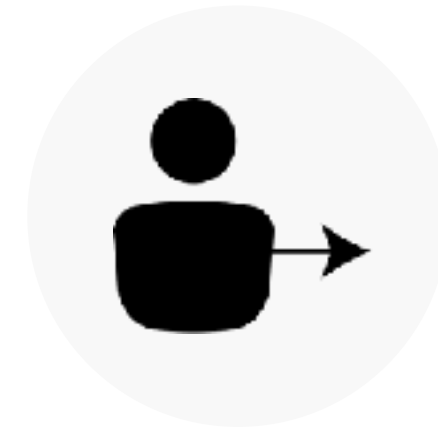
02 | WHAT IS POSSIBLE?

Orientation

Play audio based on the user's head orientation.

Gestures

Interact through head nods, shakes, and touch gestures.
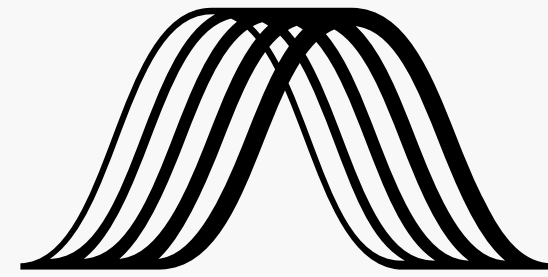
Pinned Audio

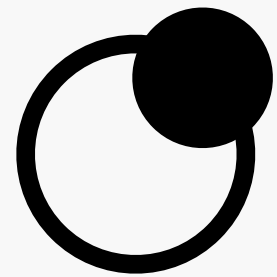Place audio spatially relative to the user or absolute to real world.
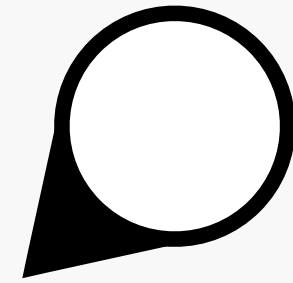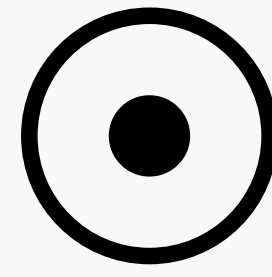
Motion

Play content based on movement and position.

Bose AR Design Patterns

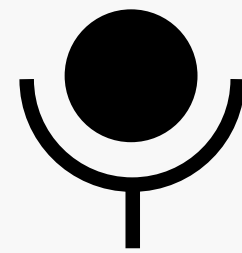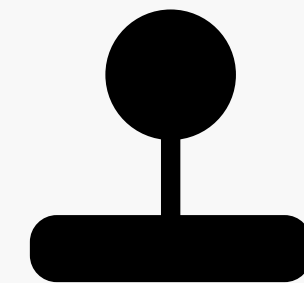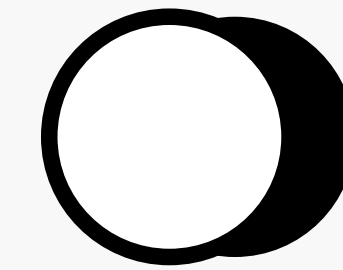|				
Scene	Spotlight	Audio Pins	Voice	Radio
Gesture	Recorder	Joystick	Shadow	
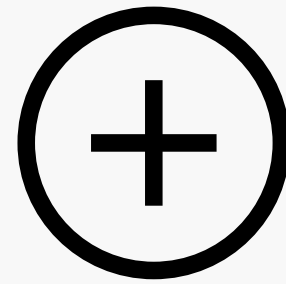
Scene

Create custom binaural environments for your users.

The Scene design pattern surrounds a user in a virtual environment of audio. This means that audio can be placed at specific orientations and distances to create moods or tell stories. Imagine launching a virtual beach where gentle waves stay fixed in front of you even as you turn your head to look around. This effect is done with a combination of sound design and sensors that track head orientation. Scenes can enhance where you are, like listening to a past performance in the place where it was recorded, or they can be used to escape to somewhere altogether different.

Considerations

Scenes can be used to enhance a real-world location or transporting users to somewhere else. You may consider creating scenes for types of places, such as parks, health clubs, or airports. Scenes may be interactive, allowing users to control their content with gestures, movement, or voice.
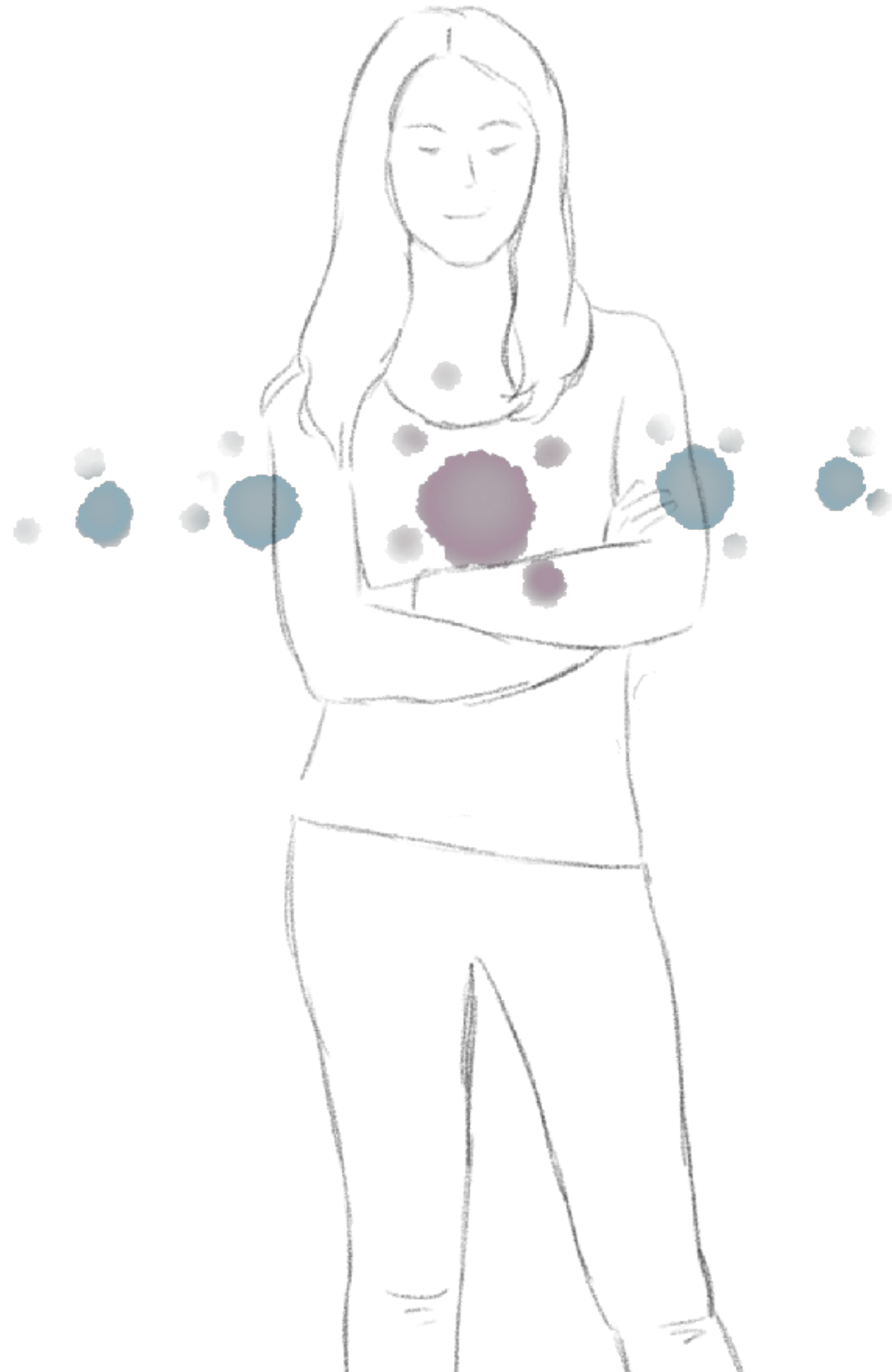
Spotlight

Present choices in front of your user.

The Spotlight design pattern allows you to place multiple virtual audio sources each at a different direction in front of the listener. When the listener turns their head to focus on any one of them, the sound of that source can be turned up louder. Then, the listener can accept or reject the object by a simple nod of the head. For example, you may want to browse a set of music options, restaurant recommendations, audio tours, or multiple choice answers to a trivia question. Spotlights make browsing through audio much quicker and easier than navigating audio menus by voice alone.

Considerations

Spotlights rely on head orientation. Use clear audible feedback to guide interaction. Also, keep it simple - users may be overwhelmed by more than five options in a Spotlight pattern. Avoid requiring fast head movements as audio latency may diminish the experience.

⊙ Audio Pins

Create an invisible layer of audio in the world.
The Audio Pin design pattern places audio at real world locations, from specific points to larger regions. When the listener approaches a virtual audio source, or looks towards it from a close distance, they hear the audio from it. Imagine a public park or a room in your house with its own music or an audio tour where travelers hear tips and stories based on the landmarks they come upon.

Considerations
Audio Pins are made more compelling by delivering immersive audio based on the user's head orientation. Give geo-located audio recording an ample radius and padding to avoid conflicting or overwhelming audio for your users. You may want to deliver audio automatically or only play audio on-demand. Both have benefits so consider the implications in your experience. Playing audio based on real-world proximity will require user to be running your app at the time.

Voice

Present unique experiences through a binaural voice interface.

Speech interfaces are becoming the ubiquitous way that people interact with technology. With the Voice design pattern, you can use natural language and dialogue to enhance your audio experience. Imagine a reminder whispered behind one ear or a personal trainer that keeps pace out in front of you. With geolocation, you can lead users as a "voice on their shoulder" through an experience in the real world, like an interactive tour or exploration.

Considerations

The easiest way to start is with audio recordings but a text-to-speech engine will allow for more dynamic content. Audio may be presented spatially and leverage information about the user's head orientation. Avoid requiring fast head movements as audio latency may diminish the experience.

Radio

Deliver a custom stream of audio.

The Radio design pattern delivers streaming audio into the space around your user. For example, you could hear a radio broadcast while at a game, a social media feed on your shoulder while watching TV, or the voices of your friends in the space around you while you walk around town. Bose AR sensors make this possible when combined with streaming audio. Now, instead of constantly glancing down at your phone while watching TV or at the stadium, a hidden audio feed keeps you connected and aware of your world.

Considerations

Streaming audio may present latency when combined with head orientation. Be sure to test your content and use case in the target environment to ensure the experience plays out as desired.

⊕ Gesture

Enable users to initiate and control audio in new ways.

The Bose AR sensor allows users to interact with audio in new ways through natural, multi-modal gestures. For example, you could nod or shake your head in response to a question or offer. Perhaps you want to play a story when you look at a statue and double-tap your device. Or, maybe you're playing a game where you pick objects up with a head nod, move them by turning their head, and dropping them with a head shake. We expect developers to come up with some creative uses of the Gesture pattern. Bose Frames will be able to recognize a double-tap on the right side of the device. Developers may use this gesture to help users take actions, request audio on-demand, or otherwise control their audio experience.

Considerations

A Gesture pattern likely needs to be paired with other patterns to enable a full experience. Keep in mind that head gestures are commonly performed in real-world interactions so they should be available only as responses to questions. For example, asking "would you like to learn more?" and accepting a head nod or shake in response.
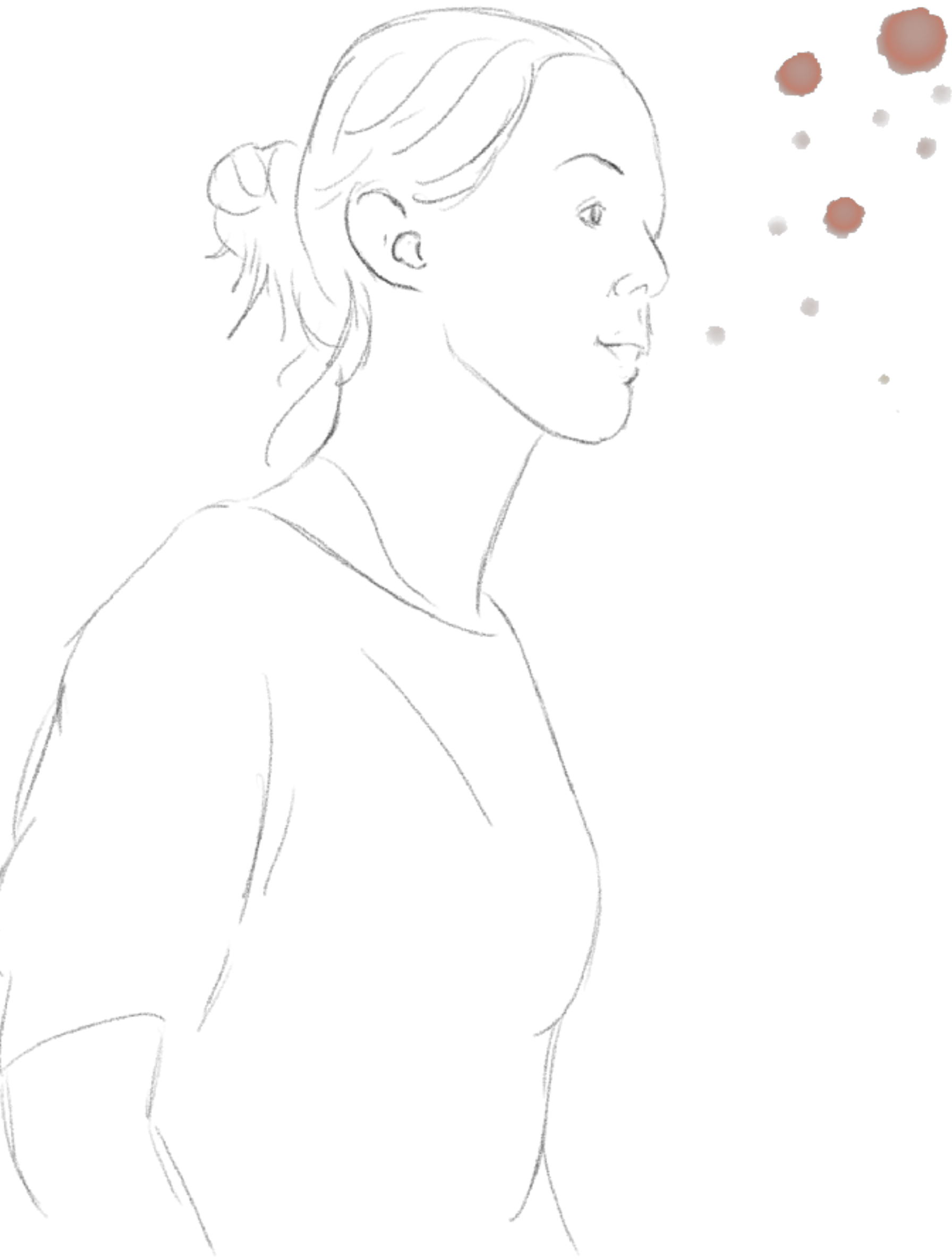
Recorder

Enable users to capture and share audio.

The Recorder pattern allows users to capture audio of their voice or environment to be shared with others. Recorder patterns can be used to help people note their experiences, tell stories, send messages, or create reminders while on the move. The resulting audio can be discovered online or out in the world, delivered spatially in real world locations to relive experiences, or serve as memory cues in the places that they occurred.

Considerations

Due to the limitations of current GPS capabilities, do not expect recordings to play back at the exact head orientation as when they were originally recorded. Instead, design your experience to capture the surrounding environment in a way that doesn't overly rely on precise "pointing" with the user's device.

Joystick

Give your users a physical controller.

The Joystick design pattern allows for connected devices, like phones or smart watches, to act as physical interfaces for Bose AR experiences. One way to do this is to use the device's screen for control, like allowing the user to place chirping birds in the spatial environment around them. The screen can also be used to display supporting information, like a map of the surrounding area of a menu of a nearby restaurant. Beyond the screen, the physical device itself can be used as a controller, like tilting your watch to compose music or swinging your phone as a virtual sword or racquet.

Considerations

Consider using audible feedback when the user is moving the "joystick" to guide interaction and make the object "come to life" in fun and interesting ways.

◐ Shadow

Create audio that responds to user movement.

The Shadow pattern is used when you want audio to change with user movement or activity, which can be recognized with the Bose AR sensors. For example, you might want a custom music theme for your kitchen or living room, a unique style when you walk outdoors, or a theme for your running workouts. Using the Shadow pattern can help the listener feel like they've got their own personal soundtrack — a soundtrack that's changing as their movement changes. Building experiences using this pattern can be fun for people wearing open ear audio designs (because it can feel like a secret soundtrack) or for people wearing headphones.

Considerations

This pattern requires the recognition and classification of movements, such as walking, running, or standing.

03 | NOTIFICATIONS

Make your content discoverable.

Designing audio content that is pinned to the real world can present a difficult challenge. If people don't know it's there, they'll never find it. You give them action to play any audio that might be in front of them, but what happens if there's nothing there? How many times will they try and fail before they quit? You could also play content automatically as people approach it, but then you run the risk or annoying them if they weren't expecting it. Notification preferences will vary by user, so apps should allow users to customize notification behavior where appropriate.

Fortunately, there are strategies to getting this right and it can depend on the kind of experience you're trying to create. The following captures a range of seven notification strategies that you may consider using in your experience.

Hints

As users comes into proximity of a virtual object pinned to the real world, they hear a tone that appears to be coming from it using spatialized audio. That audio may pulse and stays fixed to the real world location, even as the user moves or turns their head. The tone means **"something is over here."**

Hints suggest to the user that something is available if they would like to hear it. If the user is interested, they simply can accept or decline the audio with a head gesture (nod or shake), voice response, or the same gestures they use to accept or decline a phone call.

If they're not interested, they also can simply ignore it. For that reason, Spatial Hints should be subtle. Just distinct enough to be heard and provide ambient information, but just quiet enough to be ignored.
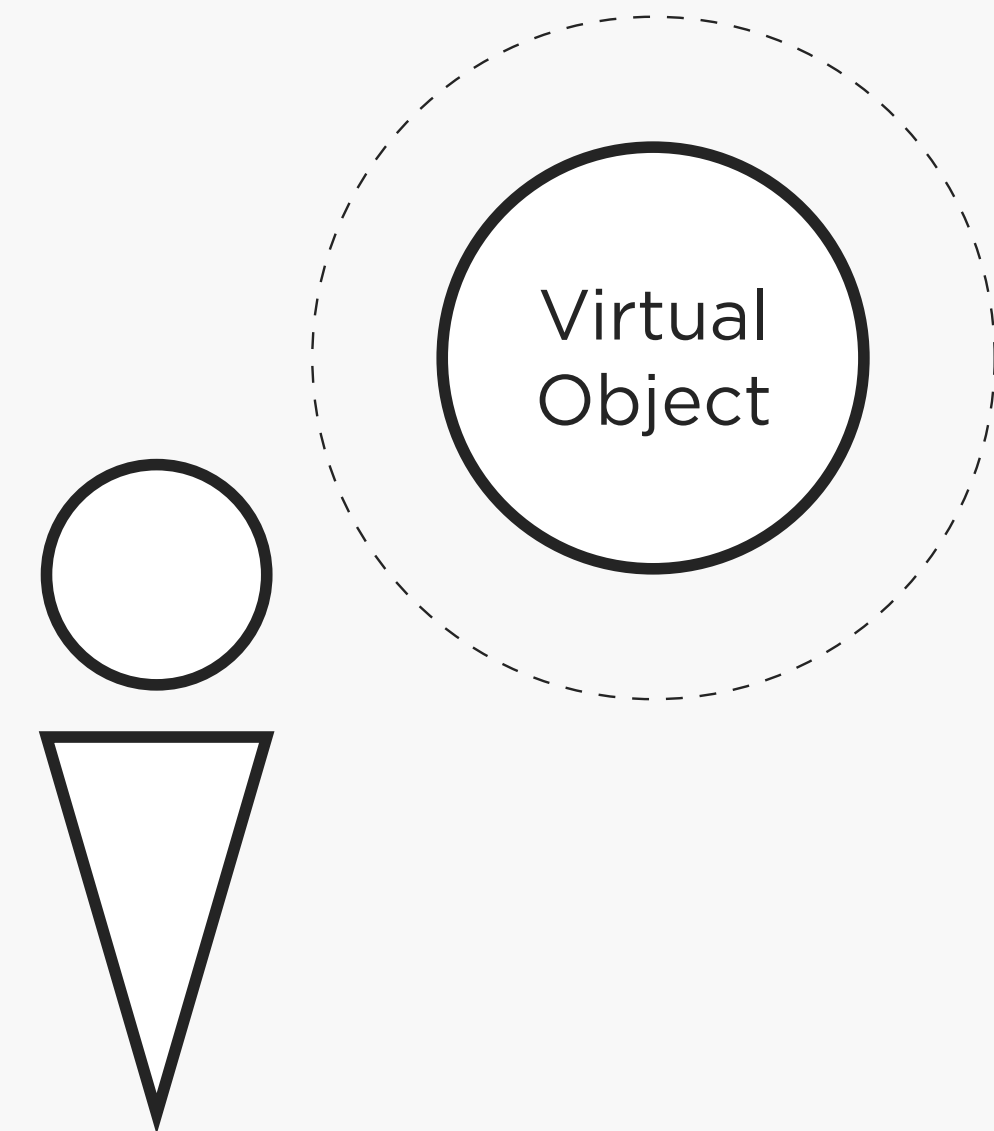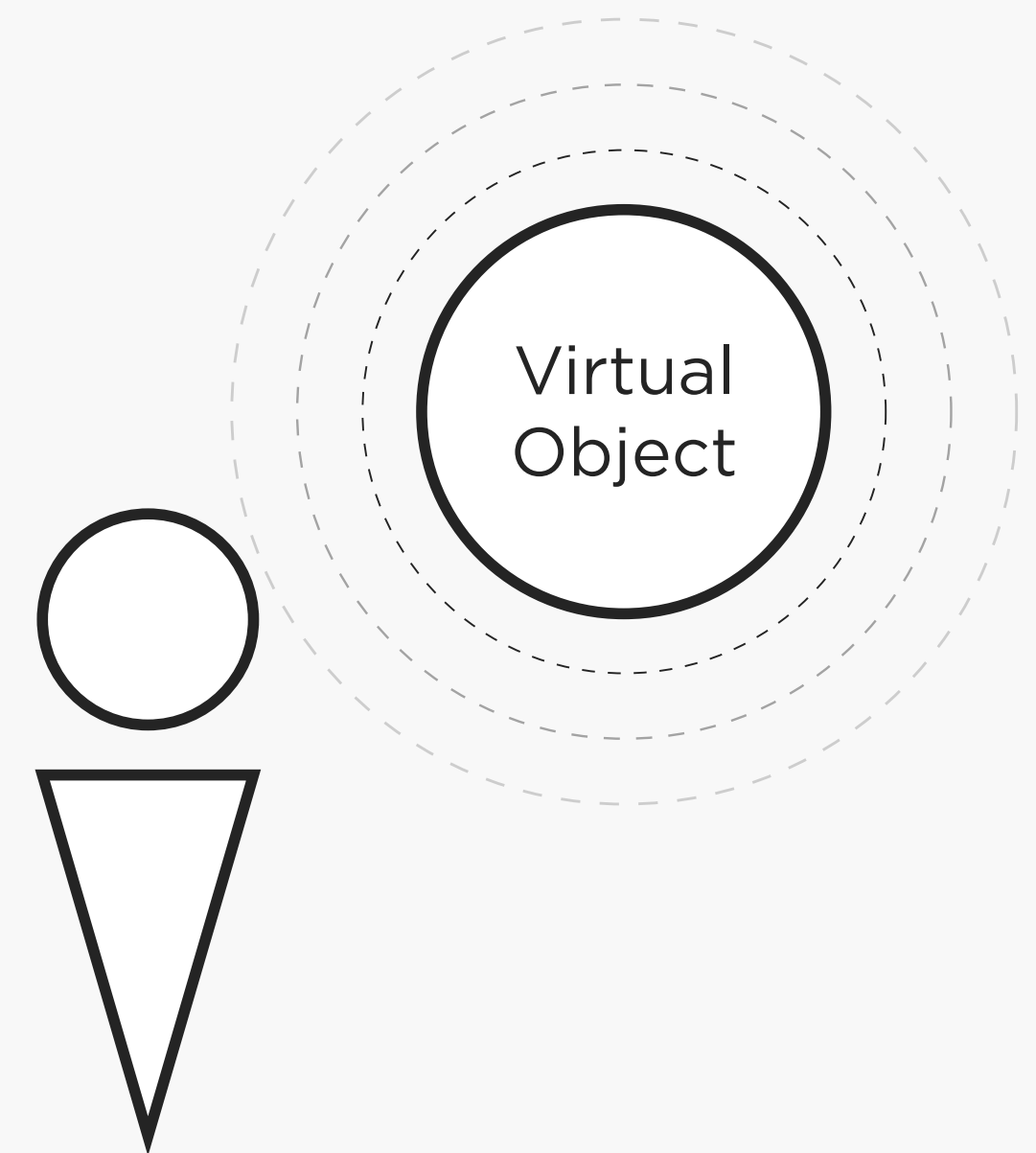
Virtual Object

Soundscapes

As users comes into proximity of a virtual object pinned to the real world, they hear an ambient "soundscape" that raises in volume as the user approaches. Soundscapes may be soft music, ambience, or other subtle audio. The soundscape means **"something is nearby."**

Soundscapes suggest to the user that something is available if they would like to hear it. If the user is interested, they simply can accept or decline the audio with a head gesture (nod or shake), voice response, or the same gestures they use to accept or decline a phone call.

If they're not interested, they also can simply ignore it. For that reason, Soundscapes should be subtle. Just distinct enough to be heard and provide ambient information, but just quiet enough to be ignored.
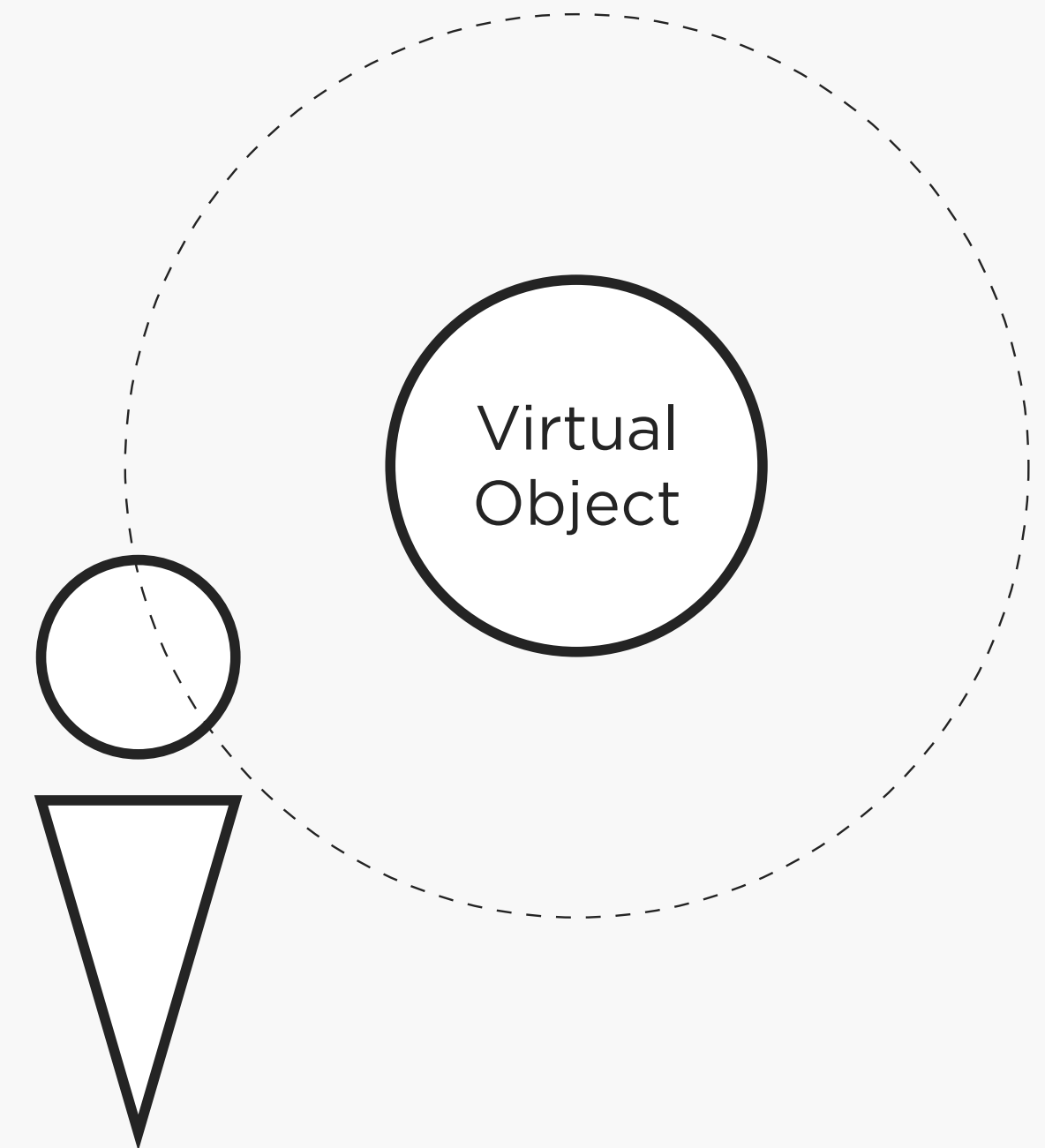
Virtual
Object

Automatic

As users comes into proximity of a virtual object pinned to the real world, they automatically hear the audio coming spatially from it.

There's an obvious risk with this approach as it assumes that the user would be receptive for it. For that reason, this approach should be used when users have opted into the experience. For example, a museum tour where the user launches the experience and all exhibits that follow automatically play as the user approaches.

Virtual Object

On-Demand

As users comes into proximity of a virtual object pinned to the real world, nothing is played as the user approaches. Instead, audio only plays when the user looks towards it and performs an On-Demand action, such as a double-tap on the right side of Frames.

There's a risk in this approach of users not discovering content. As mentioned, this might also lead to failed attempts (attempting a double-tap and getting an error) which will lead to frustration over time.

Virtual
Object
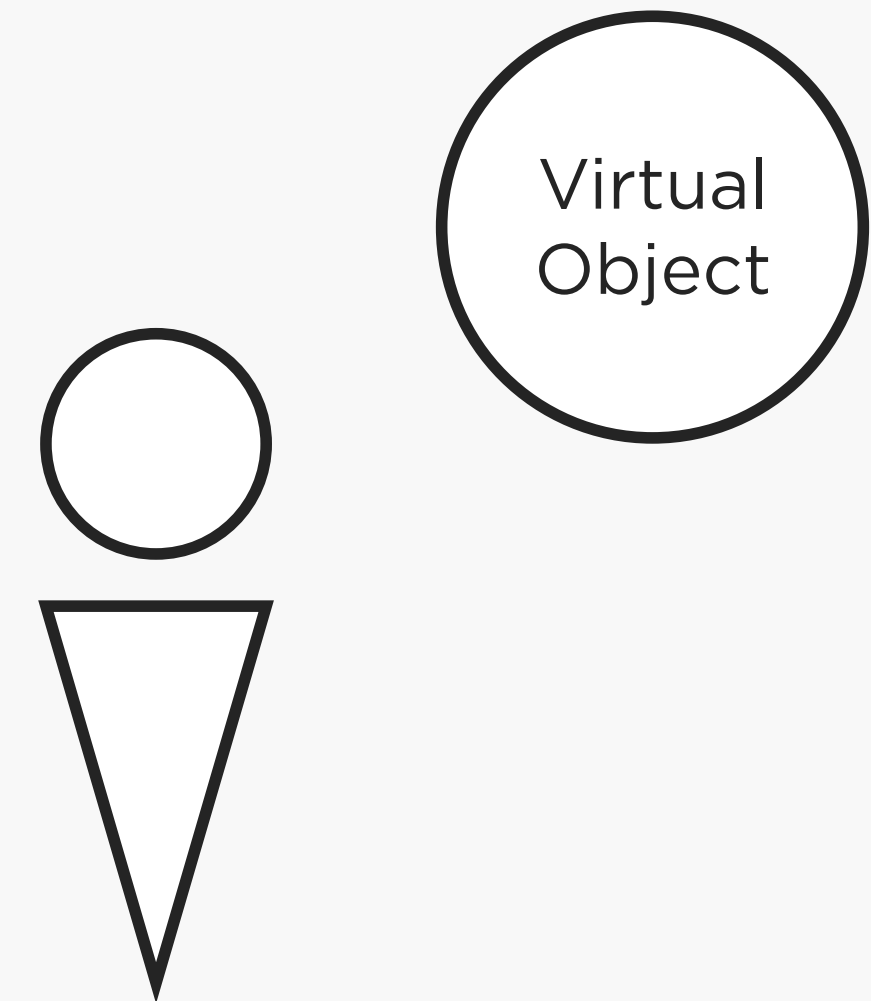
04 | BRAND GUIDELINES

The Logo

The Audio Ribbon is a simple, recognizable, and unique mark that represents Bose AR. It's inspired by the auditory nature of the platform. The abstracted "A" is made up of the multiple audio layers of the platform.

The thin to thick transition of the audio layers is meant to represent the growth from today's rather simplistic audio experience to the full, rich and enhanced experience of tomorrow.

The default colors of the logo are black and white. This guarantees that the Bose AR logo always separates itself from any background it sits on.
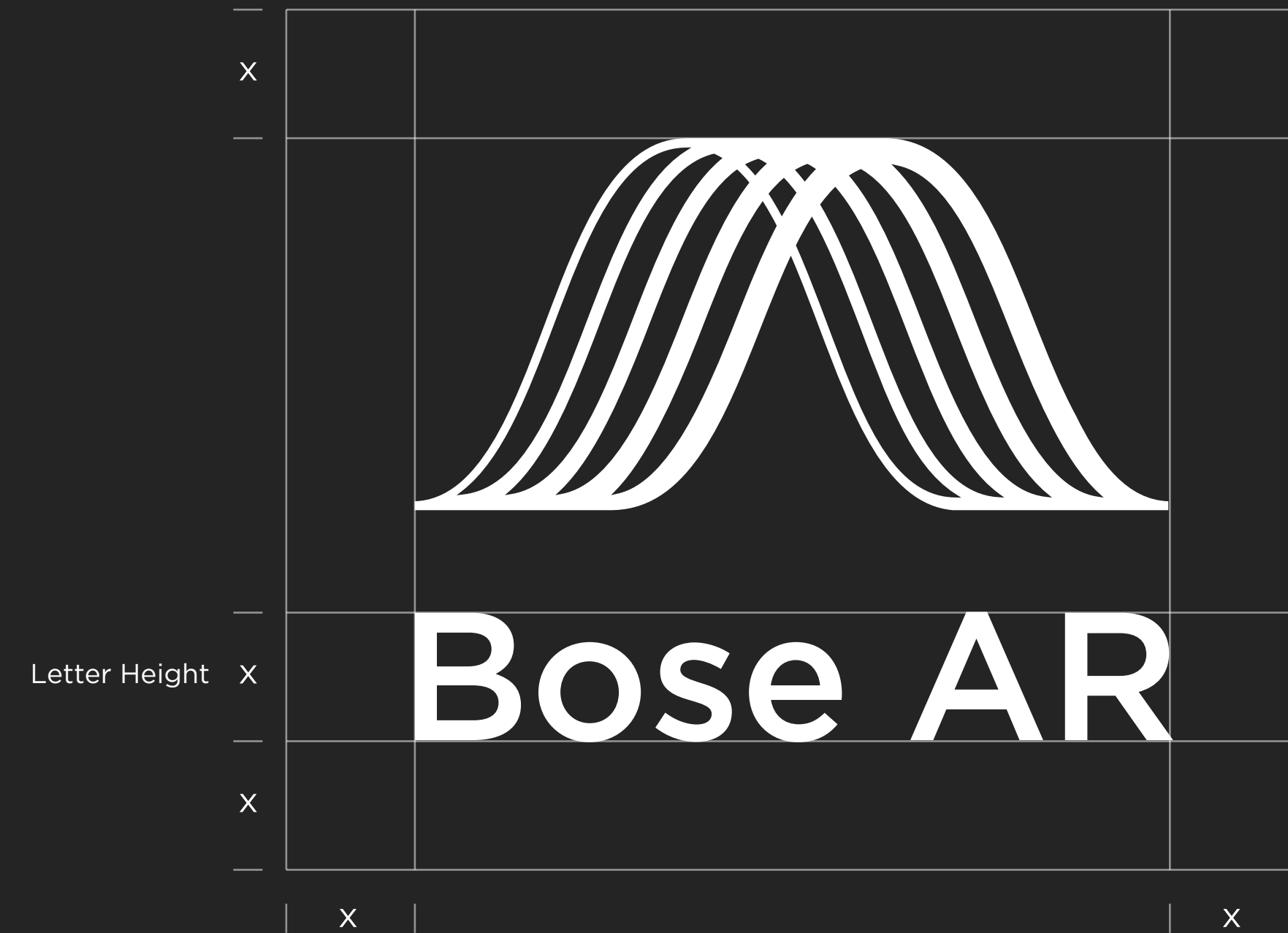
Clearance

The clear space around the Bose AR logo allows it to stand out from surrounding elements. As such making any piece of communication clearly and instantly recognizable as being Bose AR enabled.

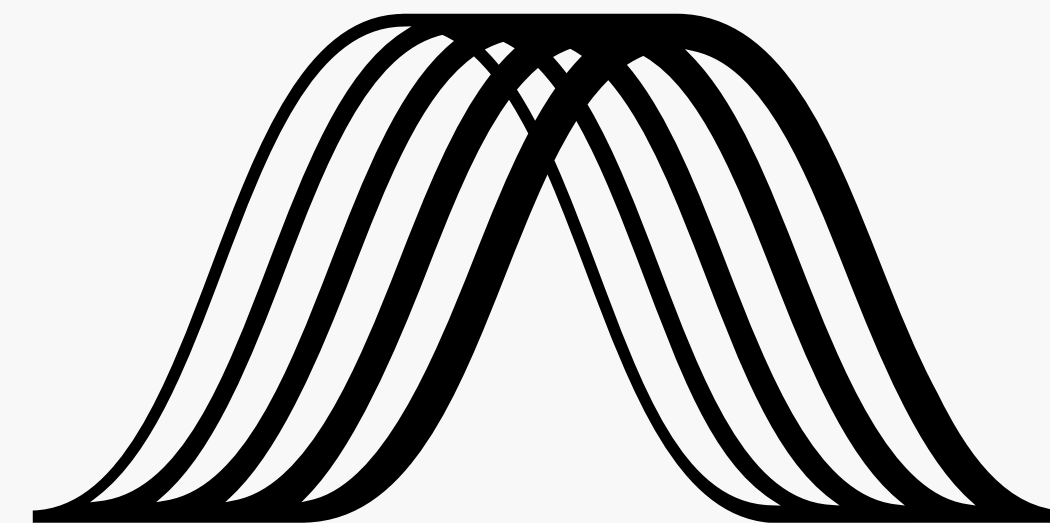The clear space is identical to the height of the logotype.

Letter Height X

Vertical Lock-Up

The Bose AR logo may be used with a vertical lock-up with type under the Audio Ribbon. This version of the logo may be used in black or white.
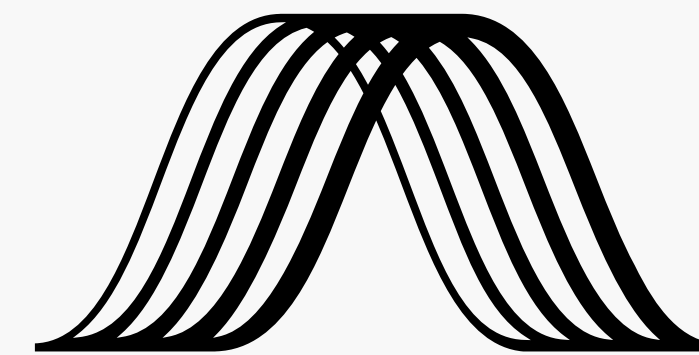
Horizontal Lock-Up

The Bose AR logo may also be used with a horizontal lock-up. This layout allows for legibility on displays where vertical space is limited. This version of the logo may be used in black or white.
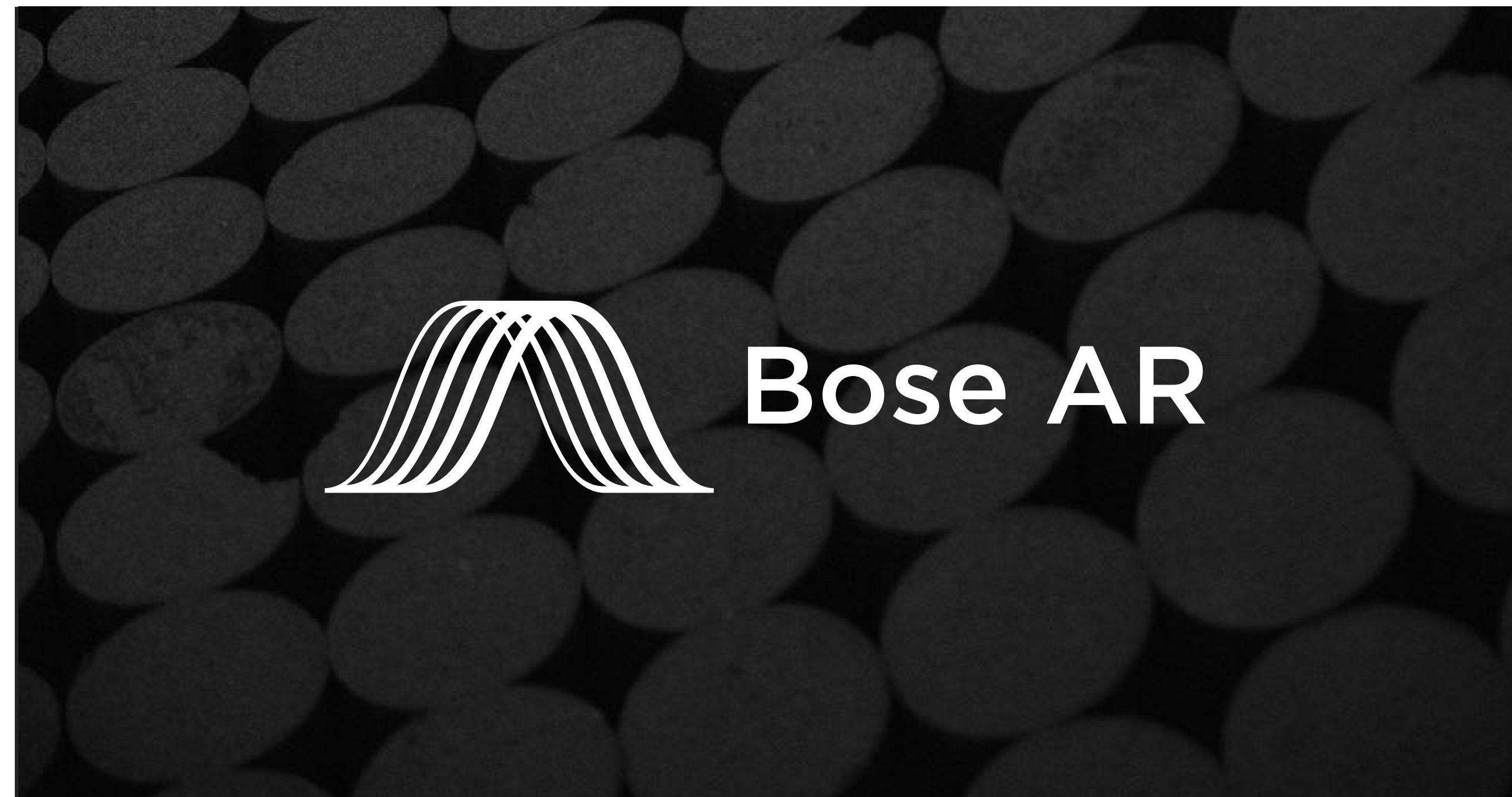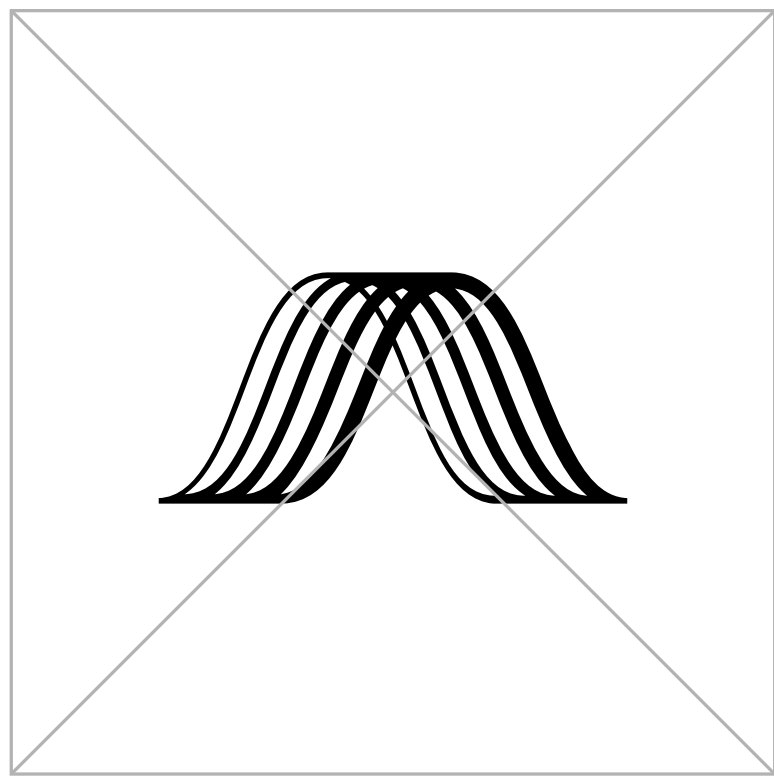
Placement

When the logo is placed on a solid or photo background, it can be transparent in either black or white. Make sure there is enough contrast to make the logo clearly stand out.
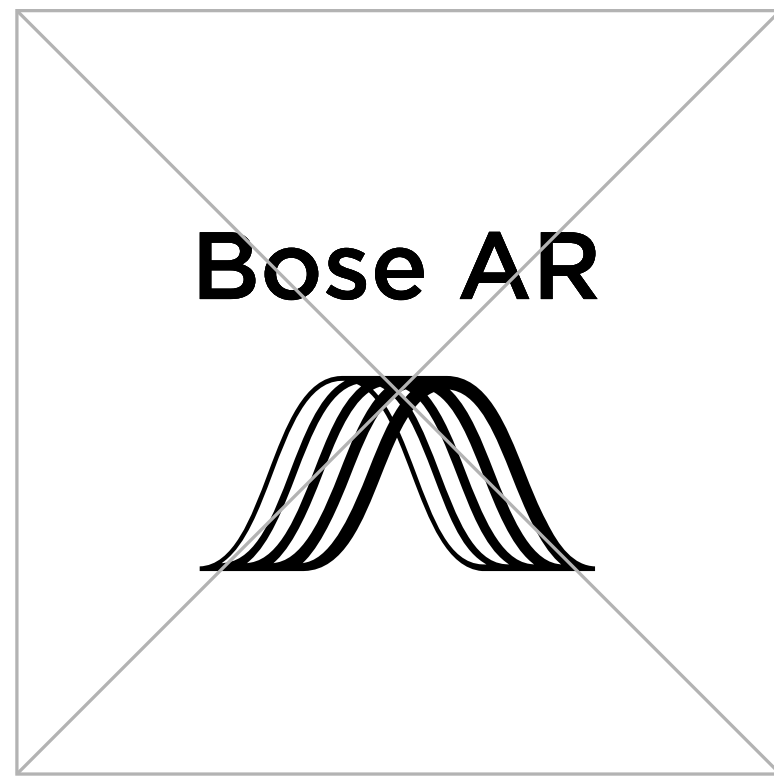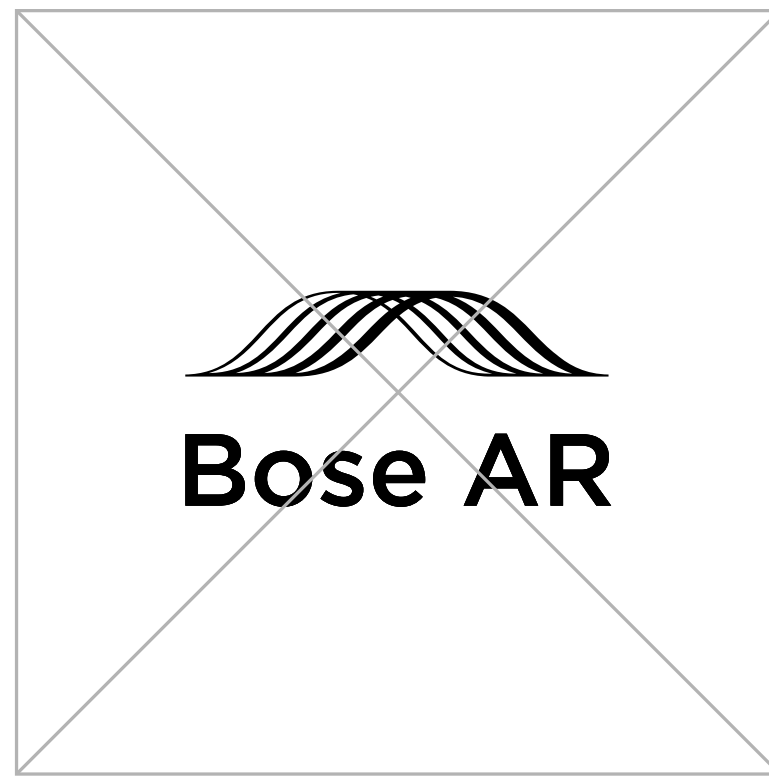
Logo Restrictions

The following are examples of unacceptable usage of the Bose AR branding.

Don't use the ribbon alone.
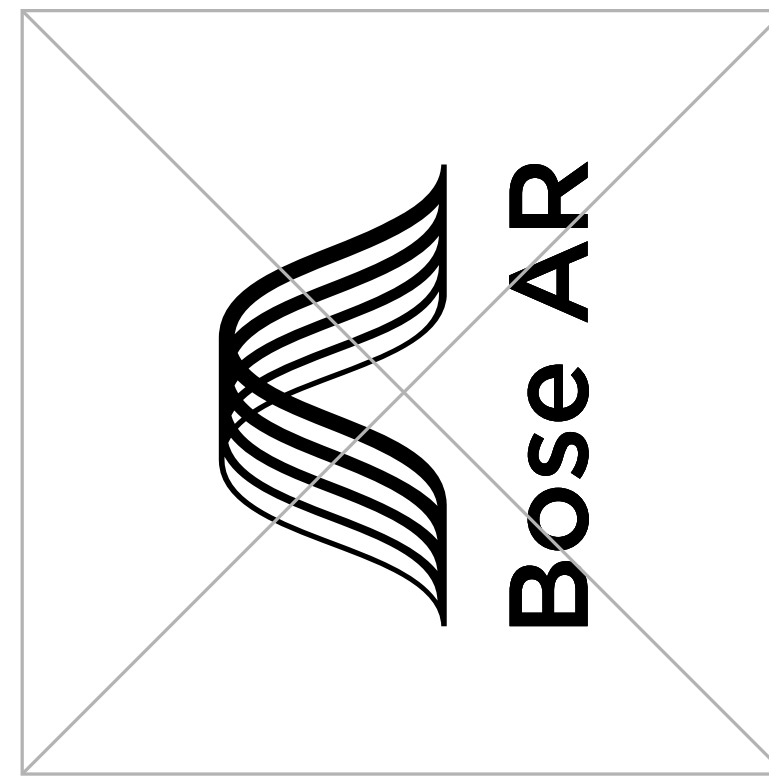
Don't use non-approved layouts.

Don't distort visual elements in the logo.

Don't rotate the logo.
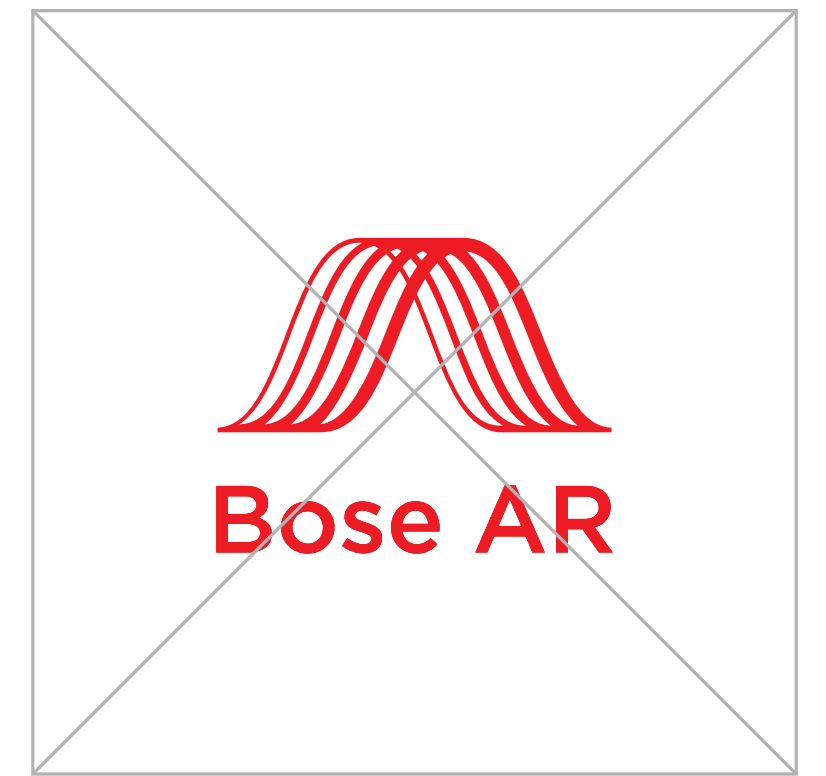
Don't used non-approved colors.

Messaging

Partner applications may message their integration with Bose AR through the phrase "Enhanced with Bose AR." This phrase should be written in the same Gotham logo type and be co-located with the brand.

Enhanced with Bose AR

Enhanced with Bose AR

Partnership Lock-Up

Bose AR and partner branding may be co-located given proper visual clearance and alignment with Bose AR Brand Guidelines.
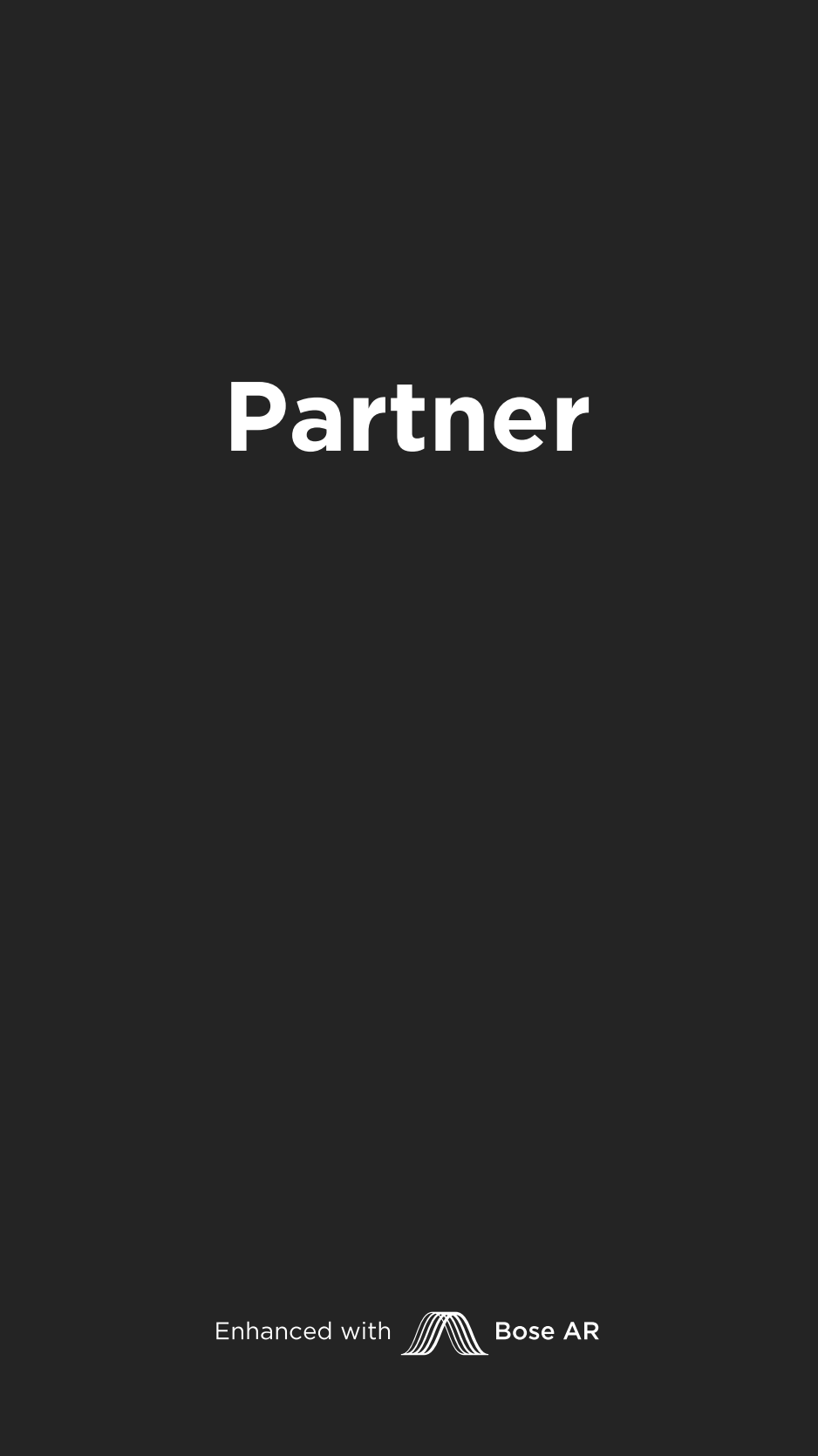
05 | GETTING STARTED

What's expected of you.

- Provide clear entry into an AR experience within your app

- Teach users how to use your product's UI during your AR experience

- Provide clear exit out of an AR experience within the app

- Communicate to users when IMU sensor data is unavailable (error messaging) either in the app or a push notification (up to the app's discretion) and stop AR-related output

Helpful Hints

1 | Be ready to explain your AR experience in one sentence.
Your application may have thousands of features, but its core is the experience story. Elevate the story - not the technology.

2 | Seek to enhance reality, rather than supplement it.
Push beyond quick voice transactions. We're giving people the power to enhance their reality. From fully blocking out the world to layering content into their environment, we're helping people feel more present and connected. Disrupt the routine - the daily ritual can be a grind.

3 | Be ubiquitous. Experiences aren't bound to certain places.
Consider your experience beyond a single location. Experiences can be launched from anywhere. Maybe, it's an audio experience that works in all parks, sports stadiums, airports, or outdoor malls. Or, maybe it's launched from their apartment, living room, or backyard. Bring all places to life with information, story, and sound.

4 | Be accessible.
Your experience might be used by all types of people, no matter their age, comfort with technology, or physical capacity. Broaden your reach to the widest possible set of people.

5 | Continuously learn and adapt to context and user behavior.

Don't stay static. It becomes boring after a few uses. Instead, leverage the motivating power of surprise and discovery. Let people explore and invest time in your experience. Encourage play to unearth new possibilities and bonus content. Introduce innovative ideas as people use your experience more or in new situations or places. Keep your user wanting to return and discover more.

6 | Keep the experience simple.

The audience is going into new territory here. Guide people in their initial experiences by teaching the basics and allow them to master them. Establish clear rules so they understand how your experience behaves. In the beginning, hold their hand and explain everything clearly. Don't expect them to learn crazy new interaction types too fast and let them have simple controls over anything new.

7 | Minimize the number of inputs that affect your experience.

Be purposeful. Lots of sensors and live data streams alone don't make a strong user experience. Often a reduced set of inputs translates to clearly-identifiable outputs, resulting in a stronger user-controlled experience.

8 | Create voice-led experiences that users can react to at their convenience.
Be mindful of the ways in which you guide your users. Don't require the user to be proactive and manually engage. Give your users the freedom to choose what they want from your experience. Provide flexibility rather than force a user into a particular interaction style. Depending on the person and their context, they may want to switch from a fully manual request, to a hinted offering, or opt into fully automatic playback. Think about how to create flexibility for the user on how your content is paused, transitioned, and concluded.

9 | Think in scenes.
Scenes put actors in a time and place with dialogue and behavior that fit within a larger narrative — Audio Augmented Reality experiences are no different. Create meaningful, narrative-based, reality-altering experiences. Like a movie, have easily digestible moments along the way. But, in aggregate, create a journey for the user. Also, don't forget about the transition between scenes. Just as important as each scene, the transition motivates the user to continue exploring.

10 | Use simple and clear spoken language.
Simplify the language of your experience with uncomplicated sentence structures. Group information into small chunks and implement consistent user-facing terminology. Words are powerful and demand attention. Use them sparingly as they can create fatigue (and have a high potential for annoyance). There's enough stimuli in the user's environment. Consider that information doesn't always have to be spoken word. You might translate some information into branded tones, audio soundscapes, or audio effects.