OptiTrack

Installation Profile

Another Kind of Blue

Highlights

Location
The Hague,
The Netherlands

Industry
Performing Arts

Application
Animation
Entertainment
Robotics

Another Kind of Blue Unleashes Creative Ingenuity with OptiTrack

The Netherlands-based contemporary dance company, Another Kind of Blue (AKOB), has received widespread acclaim for its groundbreaking performances that explore the relationships between humans and technology. Founded by visionary choreographer David Middendorp, the company not only utilizes technology as a subject of exploration but also as a dynamic tool for expressive storytelling.

“I’ve always been fascinated by the intersection of culture and technology,” said Middendorp. “People often perceive them as separate, but I firmly believe they are closely related. Technological innovations are often born from someone’s dreams. For instance, airplanes would never have been invented without the dream of flying. And I believe technology plays a significant role in shaping human nature. It contributes to our sense of identity.”

Earlier in his journey as a choreographer, Middendorp joined a small theater in The Hague where he had the freedom to experiment with his ideas for several years. To exhibit his creations, he started posting them on different online platforms, including YouTube. Eventually, his talent caught the attention of the show, “America’s Got Talent,” where his choreographed performances reached the finals. Encouraged by the experience, Middendorp decided to establish AKOB. Several productions soon followed.

AKOB's artistic live dance performances feature imaginative uses of motion capture (mocap) technology, aerial drones, digital elements and real-time visual effects and animations, captivating audiences with experiences that are both mesmerizing and thought provoking.

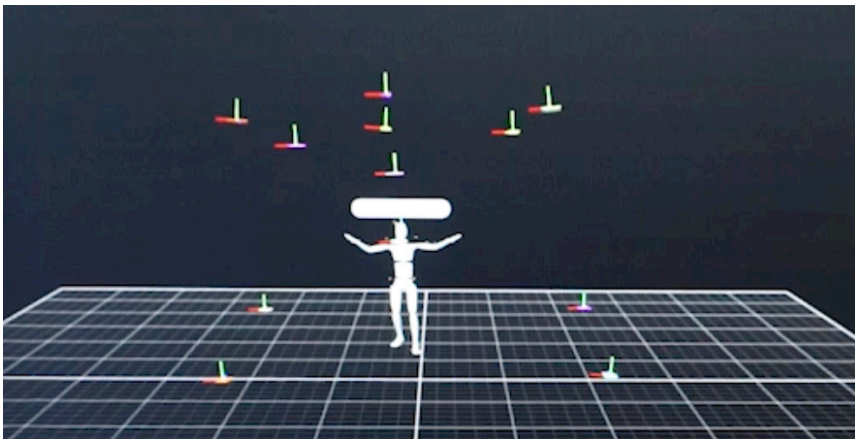
Discovering Motion Capture

Middendorp's exploration of aerial drones initially stemmed from his desire to examine the concept of free will. He envisioned a duet between a dancer and a piece of technology that could be improvised. The early stages of the concept involved someone remotely controlling a single drone from the wings. Then, the idea evolved into a swarm of drones that would form into certain shapes. However, 10 to 20 people operating drones in synchronized patterns proved impossible. "We started to search for solutions," Middendorp said. "One idea was to build our own localization system. Then, as we were looking at other possibilities, we discovered OptiTrack."

Middendorp purchased his first eight OptiTrack cameras in 2015. In the ensuing years, he has slowly been accumulating more. Today, AKOB has 25 OptiTrack mocap cameras—18 Prime^{X} 13 cameras and 7 Prime^{X} 22 cameras. The configuration provides real-time, low latency tracking that optimizes accuracy across capture areas.

Initially, Middendorp and his team used OptiTrack to track and control two drones to fly pre-choreographed paths in unison with dancers in a performance called "Newton's Duet." But as Middendorp became more proficient with the mocap system, they began using it to track dancers on stage wearing OptiTrack mocap suits. Using positional data from the mocap system, the dancers' movements could be translated into commands for controlling the drones in real-time. The subsequent performance, "Airman," featured 12 drones, some flying pre-determined paths, and others programmed to respond to the dancers' movements.

In creating these productions, Middendorp emphasized the importance of a flexible mocap system. "With OptiTrack, we can track drones, dancers and other things. Another advantage is that the infrared cameras work in low-light conditions, which is crucial since we often darken the stage to create a specific ambiance."



Imaginative Uses

Another idea conceived by Middendorp was to create a duet that explored interactions between dancers and elements of physics. He envisioned a powerful way to visualize physics through sound waves, and particularly an effect known as Chladni patterns. Named after 18th-century German physicist and musician Ernst Chladni, these intricate patterns emerge when a flat surface with a sprinkling of sand (or similar substance) vibrates at specific sound wave frequencies, causing the sand to move and gather at certain locations on the surface.

Initially, Middendorp considered creating Chladni patterns by making an entire stage shake. While not impossible, it was cost prohibitive. But then he found that he could replicate sand through simulation, leading to the development of a dynamic virtual sand representation complete with the ability to form Chladni patterns on a stage. However, for live performances, how could he depict a convincing engagement between dancers and the simulated sand? With OptiTrack he had a solution.

In the performance, “Wave,” virtual sand is projected onto the stage, and dancers, donning OptiTrack mocap suits, are tracked with precision using the OptiTrack system. Similar to the way drones can be controlled, OptiTrack allows the dancers’ movements to manipulate the virtual sand in real-time. The result is an immersive presentation where the interplay between the dancers and the simulated sand appears remarkably true-to-life.

Forging Into New Dimensions

The most recent production from AKOB originated from what Middendorp calls, “a fantasy.” He said, “What if you could visit people that aren’t here anymore? Maybe they passed away or maybe they just left. But what if there was a virtual space where you could still interact with them? I wanted to use this concept to create a choreography.”

His piece, “Missing” (part of the new full-length performance “Digital Twin”), transports audiences into a near future scenario where a dancer engages in a duet with the digital version of someone who is no longer physically here but continues to exist in an alternate reality. The performance offers a profound insight into the possibility of leaving a digital version of ourselves for our loved ones.

To create this extraordinary experience, Middendorp uses a “virtual mirror” on stage comprised of a very large display that rotates during the performance, seamlessly reflecting both virtual and real objects. Utilizing OptiTrack, the hands of dancers on stage are closely tracked, translating gestures into movements performed by digital counterparts in the mirror. “The audience gets a glimpse of what happens in this virtual world mixed with the real,” Middendorp said. “OptiTrack serves a critical role in the performance for making the display function like a true mirror.”

With Middendorp’s imaginative use of the OptiTrack system, AKOB continues to delve into new realms of creative possibilities, pushing boundaries of contemporary dance. “OptiTrack provides multiple tracking solutions in one system,” Middendorp said. “I am always learning new things about it and what it can do. If I have a spare moment, I sometimes just play with it, which is very useful for developing new ideas.”