

## A Sensor Network for Mardi Gras Parading Organizations via MIT Club Ice Hockey

Responsive Environments  
Opera of the Future  
Center for Civic Communication

Mardi Gras is synonymous with New Orleans. The parade season is a time of great organization and even greater chaos: while centuries of celebration have produced both a formal and informal framework for holding parades, Mardi Gras celebrants and workers alike are all too aware that disorder is baked into our beloved festival.

Mardi Gras parading organizations range widely in both size and scope. The largest of these operate as behemoth nonprofits, fielding thousands of paying members and operating on multi-million dollar budgets. It is a year-round business: floats are built and maintained by a network of production companies in New Orleans and its outskirts, and the most dedicated organizations begin planning the next year's celebration almost immediately after Mardi Gras day.

Due to the massive demands placed on Mardi Gras production companies, technological innovation in the Mardi Gras "parade space" is limited. The massive Krewe of Endymion has staked its reputation as the most technologically advanced parade in the city, boasting floats with programmable LED arrays and video feedback systems. The similarly massive Krewe of Bacchus has split from the city-wide "parade tracker" system to produce its own tracking application that allows onlookers to identify their masked friends as they ride and catch digital "throws." However, full-parade technological integration seems elusive.

I propose to develop a sensor network for Mardi Gras parading organizations that encompasses the entire length of a parade, including floats, riders, support vehicles, and walking personnel. Although the possibilities for such sensor networks are endless—advanced applications might include streamlined crowd control and emergency response communication—my proposal is to build a test case around a single element of spectacle: a "chase" style lighting system, the successful implementation of which would transform an entire parade into a unified LED array. A finished product would turn entire parades into unified light shows. Onlookers at a traditional uptown parade would be able to see a synchronized light show stretching as far down historic St Charles Avenue as their eyes can see.

There is a significant market for this product. In fact, the aforementioned Krewe of Endymion exists beyond the purview of the city's largest Mardi Gras fabricator, Blaine Kern Studios, which does fabrication for dozens of parading organizations that have yet to make significant technological adoptions. Many actors, from Krewes to dance troupes, have continuously sought the sort innovations of the sort I am proposing.

A system of sensors designed for a Mardi Gras parade demands both durability and ease of use. An ideal sensor needs to be usable for an everyday parade participant and durable enough to withstand hours of abuse in hostile conditions. Indeed, New Orleans' tech-averse and libertine population is the ideal test population for durable sensors, especially during Mardi Gras.

To prototype this network, I would like to use another chaotic yet limited system that is already present at MIT: the club ice hockey team. Pending approval of the team's players and coaches, I will design and install a sensor network that transforms the MIT Club Hockey team's home games into must-see entertainment for the student body, leaving in place an open-source system that can be improved and modified by future students.

A note regarding the leap I'm taking here: while I believe that a network tested and prototyped for hockey players is an ideal precursor for a sensor network designed for Mardi Gras parades, the relationship between these two types of spectacle is also intensely personal. I played hockey in my youth, spent a year after high school playing Junior hockey in rural Ontario, walked on to Harvard's varsity team in 2000, and scored a goal in the Beanpot. As my portfolio illustrates, Mardi Gras in New Orleans has played a similarly influential role in my personal development. Both projects are clear extensions of my passions.

My vision for this system is to elevate home hockey games into a spectacle that leverages MIT's long tradition of free-form technological art into a distinct home-team advantage. Johnson Ice Arena, like most ice arenas, is an ideal "white box" for sensor applications, and student-athletes at MIT are an ideal population. Easy applications involve moving-head lights and projectors that track player and puck movement on the ice, camera/display systems with public-facing controls, and a sound setup that responds to abrupt accelerometer changes, augmenting on-ice collisions with subwoofer responses. The technical challenges in this context are similar to those I addressed when I adapted Choke Hole's gritty, DIY warehouse drag-wrestling show for a 360-degree "Van Gogh Experience" room at AREA15 in Las Vegas, with an obvious caveat: instead of crafting an immersive theatrical experience for an existing system, I will design the system itself.

Another potential use case for this system would involve using biometric data to drive output. An obvious use case is "health bars" that track a player around the ice, mimicking graphics in video games. While publicly displaying biometric data is likely a third rail in heavily monetized, competitive athletics, the convivial nature of club athletics provides the perfect venue to explore live health visualizations, provided that the right consents are obtained and team strategy is uncompromised.

Although I believe that my proposal is most at home within the Responsive Environments group, I see direct applications for Opera of the Future as well. After all, a musical instrument is simply a sensor with a musical output. The networked ensemble of Jean Michel Jarre-style laser harps that I developed for Bonnaroo with Krewe of Vaporwave could just as easily have been programmed to respond to the interruption of a beam by making a stock trade, or sending a text message to a person in my contacts.

In my career as an artist, I have leveraged my creativity to enhance human interaction. I learned this ethic early on as a performer in New Orleans, when an elder musician explained to me that it was best not to think of myself as the star of the show, but rather as an accompanist to a good time. My art is perfectly capable of standing alone, but I prefer that it not; at its best, it shines light on the world around it. It is with this spirit that I submit my application to Media Lab.