

# Quiver, Pop, and Dissolve: Three Essays in Gastromorphology

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## ABSTRACT

We propose a performance that uses web audio technologies to present a unique solution to the challenge of pairing music with the unpredictable choices and actions of diners in a restaurant. Three small dishes by a well-regarded London chef will be served, and audience members will experience a customized music pairing deployed via a web app running on their own mobile devices.

## 1. BACKGROUND

The worlds of art and gastronomy have been colliding with increasing frequency in recent years. As artists are reconsidering the aesthetic potential of the chemical senses of taste and smell, chefs have been exploring the narrative and communicative potential of a meal. The Web Audio API represents a uniquely portable and scalable solution to the challenges of synchronizing sound to a dining experience. For a more detailed discussion, please see Ben Houge's talk "Web Audio in the Dining Room," also presented at the 2017 Web Audio Conference.

We propose a multisensory performance actuated by the audience members themselves. Three small dishes will be distributed to audience members in succession. Each dish will be accompanied by music from a custom-built web app using the Web Audio API, played from each audience member's mobile device.

Our project touches on some of the work in the rapidly expanding field of crossmodal psychology being done by researchers such as Dr. Charles Spence and his Crossmodal Research Laboratory at Oxford University. This work, extensively documented in scientific journals and the general press, demonstrates that sound can have a significant impact on taste perception, and we believe that this points a way forward to new types of multisensory aesthetic experiences and new modes of narrative.

Our proposal addresses the theme of Collaborative Audio in three ways:

Most apparently, composer and chef must collaborate to design this experience, which represents a unique interdisciplinary conversation.

The composer is also collaborating with each audience member, who works through the potentialities embedded in the web app to enable and deploy the music.

But perhaps most intriguing is the collaboration between audience members themselves, as they enable not only their own musical experience, but also that of their neighbors, through their actions and decisions.

A key attribute of this format that we have observed in previous multisensory dining performances is that the distributed sound helps to foster a sense of interconnectedness and community among diners, with ramifications for how we understand our place in the larger food infrastructure. Incorporating web audio technologies provides a perfect metaphor for this network of relationships, more overtly linking the structure of the project to the empathy and communication it seeks to foster.

## 2. PERFORMANCE DESCRIPTION

The performance unfolds as follows:

We begin by briefly explaining the performance and presenting a URL on a screen to the audience.

Audience members go to the website on their own mobile devices and await the first dish in silence.

The first dish is distributed by volunteers from trays, passed down the rows. Each dish is small (a few bites) and presented in a small disposable cup or similar vessel.

As each audience member receives their dish, they press the corresponding button on the web app to start the music composed for that dish. This will result in music slowly growing and spreading throughout the room as the dish is distributed.

The process is repeated for the second and third dishes, resulting in a gradual crossfade from one musical texture to the next.

Two or more speakers at the front or around the perimeter of the room will provide a subtle, non-directional, low end accompaniment, filling in the low end of the frequency range to compensate for the limited frequency response of most mobile devices.

All of the music from the mobile devices, as well as the sound from the perimeter speakers, is coordinated in rhythm and harmony via a custom web server (written with Socket.IO). The music for each dish has algorithmic and generative characteristics operating within a morphology that corresponds to the attributes of each dish. Musical textures are based upon recordings of acoustic instruments manipulated to varying degrees.

The entire performance lasts about 8-12 minutes. Duration is somewhat variable depending on the size of the crowd; we are estimating for 80-100 people.

Within the constraints of presenting an audiogustatory experience in a concert format, we seek to highlight three different modes of audience interaction. These three modes highlight different time scales of the dining experience. The first, corresponding to the morphology of one bite, is perfunctory; when the food arrives, each audience member presses a button to launch the corresponding music on the webpage, essentially serving as a simple, automated sensor and actuator; this achieves synchronization of music with the taste experience in addition to realizing, in effect, a sonification of the rate of diffusion of the food as it is distributed throughout the hall to audience members. The second, highlighting the entropy that occurs within a dish, is similar to the first, but with an added element of agency, as audience members decide which piece of music to launch, based on the principles of crossmodal perception. The third mode involves portioning the dish into bite-sized pieces, allowing each audience member to determine the rhythm of each bite and then press a button that launches a sonic event to accompany it, resulting in a pointillistic texture.

### 3. DOCUMENTATION OF PREVIOUS WORK

Composer Ben Houge has developed numerous works employing a similar format over the past few years with variations in the technology infrastructure. Examples include the following: *Cena concertante alla maniera di Vivaldi* (2017), a four-course meal with a soundtrack based on archival recordings from the Boston Symphony Orchestra deployed via sixty-four networked iPads, premiered at Symphony Hall in Boston, January 2017; *The Saint Paul Food Opera* (2016), a collaboration with new music ensemble Zeitgeist and five chefs from St. Paul, MN, with eight courses and forty channels of coordinated, real-time audio; and *Beside the White Chickens: A Summer Food Opera* (2013), a collaboration with chef Jason Bond in five courses (two possible dishes per course, presenting a highly modular structure), deployed via thirty channels of real-time audio. More information and prior publications are available at <http://www.audiogustatory.com>.

In addition, Chef Jozef Youssef has been presenting multisensory dining experiences and pop-up dinners via his organization Kitchen Theory since 2010. More information is available at <https://www.kitchen-theory.com>.

For a more complete discussion, we again refer you to “Web Audio in the Dining Room,” presented by Ben Houge at the 2017 Web Audio Conference.

### 4. TECHNICAL REQUIREMENTS

Chef Jozef Youssef will supply the food for the performance. Dishes will not require refrigeration or plating beyond what the chef’s team supplies.

Audience members will require access to a wifi network, so that they can access the web page required to run the piece (this could be a local wireless network or their personal wireless carriers).

We will present an additional layer of musical activity via the venue’s PA system alongside that which will be emanating from audience members’ mobile devices. This layer will be fairly ambient, primarily designed to fill in some of the low frequencies that are beyond the frequency range of most mobile devices. Ideally this layer would be presented quadrophonically, with speakers arranged in the corners of the performance space.

### 5. PERFORMER BIOGRAPHIES

Ben Houge is an artist working at the intersection of music composition, digital art, video games, performance, and gastronomy. Highlights of his twenty-one-year career in the video game industry include composing the acclaimed string quartet soundtrack for *Arcanum: Of Steamworks & Magick Obscura* (2001) and developing an innovative cell-based music deployment system as audio director of *Tom Clancy’s EndWar* (2008). From 2004 to 2010 he lived in China, where he was active in the Chinese art community, and his real-time, multichannel sound work has been exhibited internationally. His current work investigates the connections between music, gastronomy, and technology in a series of multisensory events he calls “food operas,” drawing on recent technological advances to achieve an unprecedentedly close pairing of music and food. Ben holds degrees in music from St. Olaf College and the University of Washington, and he is currently an associate professor in the Electronic Production and Design department at Berklee College of Music. More information is available at <http://www.audiogustatory.com>.

Jozef Youssef is the creative force behind Kitchen Theory. His years of experience in London’s most highly acclaimed Michelin star restaurants and hotels coupled with his passion for gastronomy, art and science all led to him establishing Kitchen Theory in 2010. Since then Youssef has published his first book, *Molecular Gastronomy at Home*, and is currently an associate editor at the International Journal of Gastronomy and Food Science. Youssef designs Kitchen Theory’s Odyssey Chef’s Table, corporate experiences and product ‘sensplorations,’ by combining his exceptional culinary skills with ongoing research into the scientific field of gastrophysics, carried out in collaboration with Professor Charles Spence, head of Oxford University’s Crossmodal Department. More information is available at <http://www.kitchen-theory.com>.



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