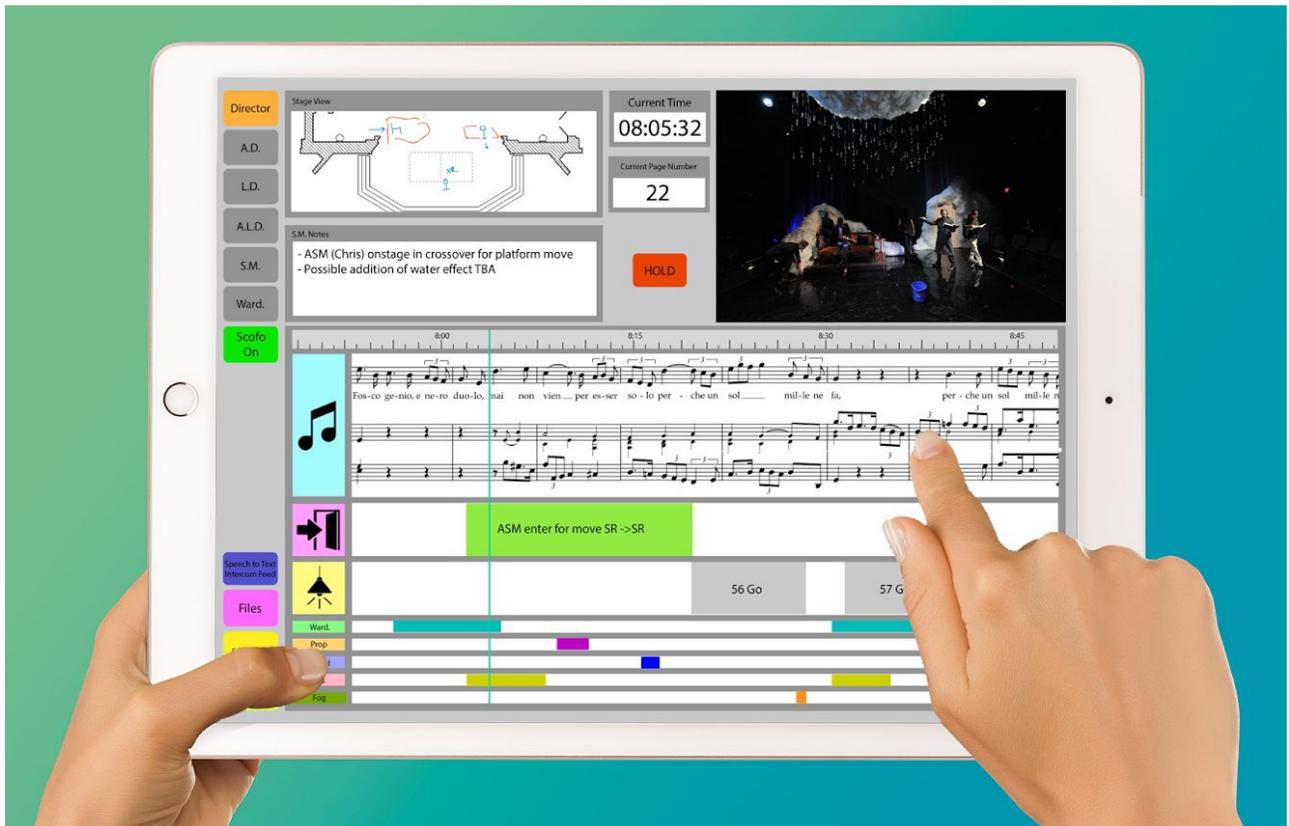


# open SHOW BIBLE

Getting us all on the same page



Mockup of the Open Show Bible interface.

## I. INTRODUCTION

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WHAT: A collaborative, interactive, visual “show bible” made for and by creative and production teams that is easy to use and eliminates cost and confusion during rehearsals, productions and production re-mounts.

TEAM MEMBERS: Miller Puckette, h0t club (Kate Bergstrom, Todd Anderson, Martim Galvão), Bryan Jacobs

## II. OVERVIEW

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The highest-pressure job during an opera performance belongs to the stage manager, who, on the basis of fragmentary inputs, must call out a sequence of cues to ASMs, lighting, projection, camera and audio operators, and musicians. The stage manager keeps in sync by acoustically following the score, watching and listening to the conductor, and using other cues. Our long term goal is to make an open-source digital show bible to replace the large paper versions currently used and make the stage manager’s job easier. This open show bible will track along with the score in real time, and show cues for all aspects of the production on a customizable scrolling timeline, as well as a live video feed of the performance. In addition to helping the stage manager keep track of the dizzying amount of information they’re responsible for, the open show bible will allow this cue/timeline information to be available (in customizable views) to all members of the crew from costumes, to sound designers to actors waiting backstage. Here we are proposing a pilot project to demonstrate the feasibility of our idea culminating in a test performance in July 2020. We envision developing a full version of the open show bible including multiple integrations with existing software used in opera productions. For a more detailed view of the larger vision for the project see [addendum](#).

### **Software prototype:**

Our software prototype will consist of a score following system that ties in to a live-animated open show bible display. The score following system will use two mutually reinforcing mechanisms to provide real-time tracking throughout the full performance. First, a QR-code reader will automatically sense the currently open page of the conductor's score via a small camera mounted to the stand light, providing a robust marker, accurate to within a few seconds. Second, score following software (originally developed by group member Miller Puckette) will match live audio input of the singer’s voice to the corresponding part in the score. This analysis will not only precisely show the current score location down to a fraction of a beat, but will also allow the singer's shaping of individual notes to affect lighting and projection, for instance to synchronize a fading spotlight with the decrescendo of a sung note.



Mockup of our QR page tracking system, qFlip.

### Demo Performance:

We propose to present an experimental performance of a five or ten minute extract of Wozzeck (reputed to be hard for some stage managers to follow), using a solo singer with recorded orchestral (or even piano) accompaniment, using the QR and score following techniques to automate an appropriately reacting projection design. This performance would be geared toward a more adventurous audience who might take an interest in the technology as well as the music (and whose interest in opera might be nurtured by the experience).

### III. INDUSTRY IMPACT

- Lower the cost of producing traditional opera while also being able to support new work
  - Production: can look like 6-hour dry-tech reduced to 1-2 hours
  - Distribution/co-pro/moving a production
- Improved Communication
  - Unification of prompt books across management and production team reducing clerical labor and risk of transcription/communication errors
  - Less friction between members of the production team (+ teams in any touring house)
- Faster and easier modification of cue list and edits throughout rehearsal and tech process
- Ease of archiving, distributing and reproducing operas with universal cue notation

- Better packaging of documentation (useful in both revivals/moving a production and for archival purposes.)
- Increased reliability of cueing/tech sequencing.
- Score Following makes modern productions easier to follow by stage managers, stage directors, design and production teams.
- Singers can synchronize with electronics during rehearsal and feel more control over their use with cues tied directly to the singer's voice
- Apply to chamber operas and recitals the same level technical sophistication as grand opera
- Solid timing layer with open-source interoperability to interact with other systems:
  - OSB has the ability to add other components to the system, and keep them in sync - e.g. Qlab, Virtual Stage Manager, Vectorworks, Isadora, Max, etc.
  - Ease of integrating new media projects such as AR or livestreaming leading to new audience development
  - Extensibility- ability to add specialized extensions in house to meet each production's needs (for choreographers, costume designers, production managers, assistant directors etc.)
  - Grow a tech community for opera both as creators and audience members

**INNOVATION:** Unified, streamlined approach to management and communication in opera production. Score following.

**ACTIONABILITY:** Ease of integration into existing infrastructure combined with low startup costs makes this immediately useable in opera productions.

**REPLICABILITY:** We only use off-the-shelf generic (standard) hardware and open-source software.

**ACHIEVABILITY:** The technical production of this project is well within the skill set of the five team members.

**IMPACT:** More cost effective and impactful opera production.

## IV. BUDGET

For budget iterations see [Sheet](#) which is also detailed here:

<b>Project Expenses: Year 1</b>			
<b>PHASE ONE : Develop initial Score Follower software prototype</b>			
<b>Team Labor (\$200/day)</b>			
Scrolling mockup/PDF (5 days) BRYAN	\$1,000		
Software Development (5 days) MILLER	\$1,000		
Mockup Graphic Design (3 days) KATE	\$600		
QR code development (5 days) TODD/MARTIM	\$1,000		
Timeline concept Development (2 days) TODD	\$400		
Attaching score follower to PDF (5 days) BRYAN	\$1,000		
<b>Materials and Fees</b>			
Musician fees (Vocalist, Pianist)	\$200		
Cloud storage	\$75		
USB camera	\$15		
<b>PHASE ONE Subtotal</b>	<b>\$5,290</b>		
<b>PHASE TWO: Four day meeting with live trial at UCSD</b>			
<b>Labor</b>			
Team Labor (5 participants x 4 days @ \$200/day)	\$4,000		
Conductor	\$200		
Singer 1 (Soprano)	\$200		
Singer 2 (Baritone)	\$200		
Stage Manager	\$200		
<b>Materials and Fees</b>			
Travel + Meals (January 2020)	\$2,100		
Materials	\$100		
Space Rental/use	\$125		
<b>PHASE TWO Subtotal</b>	<b>\$7,125</b>		
<b>PHASE THREE: Performance of Wozzeck segments at SDO using Score Follower</b>			
<b>Labor</b>			
Team Labor (5 participants x 4 days @ \$200/day)	\$4,000		
Conductor	\$200		
Singer	\$200		
Production Manager	\$200		
Videographer/Editor	\$500		
<b>Materials and Fees</b>			
Score (Wozzeck)	\$285		
Travel + Meals (Summer 2020)	\$2,100		
Food and Hospitality	\$100		
<b>PHASE THREE Subtotal</b>	<b>\$7,585</b>		
		Expected in-kind donations from UCSD	
		Space/Venue Rentals	\$250
		Light rental	\$300
		Tech assistant	\$250
		Stage hand	\$100
		Sound rental	\$500
<b>Total expenses</b>	<b>\$20,000</b>	<b>Total in-kind donations</b>	<b>\$1,400</b>

## V. MILESTONES

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1. Develop initial score follower software prototype
  - QR-Code page turning detection
  - Audio score following software
2. Mockup of open show bible interface
3. Demo performance in July 2020

### **ADDENDUM: 5-Year Roadmap**

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We envision the open show bible as a multi-year project with the prototype performance/action proposed here as a jumping-off point. Following the performance detailed in this proposal, we would like to continue development of the open show bible into an accessible production-ready app for computer and tablet. While the prototype will show a mockup of a single view, the full version will have customizable views with the information most relevant to the specific user, whether it be a stage manager, assistant director, a board operator/mixer, wardrobe, etc.

As we work on building out customized interfaces for different members of the production crew, we will work to integrate the open show bible with existing programs used by those roles such as Qlab, Vectorworks, Virtual Stage Manager and Isadora. We will also work to make the software interoperable to more easily connect to other programs, and future ones yet to be developed. Using further research and practice into beacon technology we would like to augment the OSB with blocking tracking and visualization capabilities,

Following the development of the full version of the open show bible, we will produce a 60-minute chamber opera in 2022-23 to fully test out and demonstrate the project in a performance environment. A successful performance in an opera house will give other opera companies around the country confidence to integrate the open show bible into their productions.

As the open show bible enters wider use, we will focus on developing tutorials and technical documentation to support new users. Additionally, as an open-source project we will work on building out the community and empowering other developers to maintain and extend the project. We will create community communication platforms (forum / slack) and facilitate in-person gatherings between developers and opera production teams.

We plan on seeking outside funding to support the ongoing development of the open show bible following the first year. We look forward to talking more with SDO/Opera Hack about potentially being the institutional partner premiering this work.