

# CAMPIMETRE

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**Client:** Dr. Betsy Meinz, Department of Psychology, SIUE

Provides summarized performance data to determine where pianists look in sheet music when sight reading.

- Correlate eye tracking and MIDI data sources;
- Generate reports specifying where one is looking while playing parts of a score, and
- Provide an interface to ease running of studies and analysis of data.

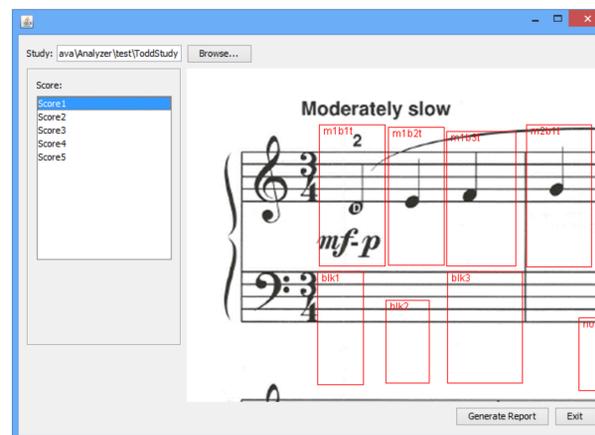
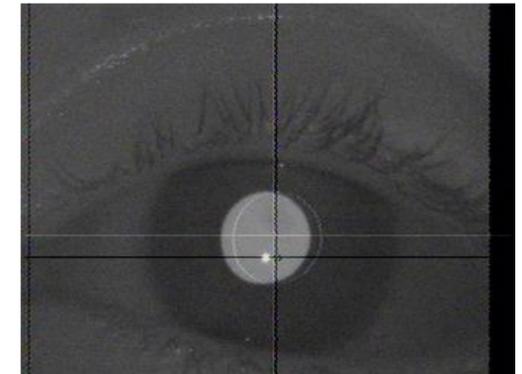
Our plan centered around the various incoming data sources we were to correlate. This required implementation of four modules:

1. MIDI I/O—any MIDI device;
2. Eye Tracker I/O—statistical analysis and parallel port communication;
3. Graphical Interfaces—for specifying areas of interest on the screen, and
4. Report generation—correlates MIDI and eye tracking data.

In the first semester, we implemented the MIDI I/O and eye tracking components. In the second semester, we focused on bringing it all together—with report generation and friendly user interfaces.

## Study Design

Allows the client to specify the order in which a participant will play scores. Each score has a time signature and tempo, which may be used to play a metronome during each performance. In addition, the client may specify how long the performer can preview the piece before starting to play.



## Conducting Studies

Displays scores in a particular order, and records what notes the user plays on a MIDI keyboard. The notes played are recorded to a MIDI file for expert ratings analysis, and the MIDI note data is sent to the eye tracker via a parallel port.

## Data Analysis

By specifying areas of interest on the screen, the client is capable of analyzing the outcomes of studies. This data can then be used to answer questions such as: *How far ahead, on average, does one look ahead while sight reading?* and *What is the average time a player spends moving their eyes during a performance?*

Time (ms)	Field Number	Note	Suspected AOI	Initial Span (px)	Initial Span (boxes)	Initial Fix.	Duration	Max Span	Total Fixations
0	0	<up>	m1b1t	304	<N/A>	100	389	11	
12835	755	D4	m1b1t	18	0	717	37	2	
14229	837	<up>	m1b1t	<N/A>	<N/A>	<N/A>	<N/A>	0	
14263	839	E4	m1b2t	38	1	517	38	1	
15657	921	<up>	m1b2t	<N/A>	<N/A>	<N/A>	<N/A>	0	
15674	922	F4	m1b3t	130	1	1552	130	1	
16915	995	G4	m2b1t	104	1	350	104	1	
18088	1064	F4	m2b2t	29	0	317	29	1	
19312	1136	E4	m2b3t	95	1	2619	95	1	
20434	1202	D4	m3b1t	70	0	100	70	2	
23545	1385	<up>	m4b1t	-185	-1	284	-185	1	