Collaborative Piano - User Guide

Welcome to Collaborative Piano, a versatile digital piano app that lets you play music, record and replay performances, collaborate with others in real time, and chat—all within a single interface.

This guide explains all features and provides step-by-step instructions for using them.

Run the app:
First run PianoServer, then run PianoApp, input IP address and port to connect to server.

Features Overview

Feature	Description
Play Notes	Use your computer keyboard or your simply your pointer to play notes across 3 octaves (C4 to C7).
Switch Timbre	Switch between instrument sounds (e.g., sine, square, sawtooth, piano sample).
Auto Chord Mode	Generate chords by selecting a chord type and pressing a single key.
Record & Playback	Record your performances and play them back with accurate timing.
File Operations	Save your recordings to a file and load them later.
Networking (Multiplayer Mode)	Chat and play music together with other users online in real time.

Key Bindings:
The following keyboard keys are mapped to piano notes:

Note	Key	Note	Key	Note	Key
C	A	D	S	E	D
F	F	G	G	A	H
B	J	C(+1)	K		
C#	W	D#	E	F#	T
G#	Y	A#	U		

Tip: White keys: A–J
Black keys (sharps/flats): W, E, T, Y, U; as the piano keyboard like.

Octave Switching:

Key	Note range
4	C4-C5
5	C5-C6
6	C6-C7

By pressing corresponding key, you can switch the octave that the key binding points to.

Auto Chord Mode

1. Enable Auto Chord by checking the box.
2. Choose a Chord Type (Major, Minor, etc.) from the dropdown.
3. Play any note; a full chord will sound based on the root note you press.

Changing Timbre

The current timbre is shown in the app's status area.
Click the "Change Timbre" button to choose available timbres:
Sine, Square, Sawtooth, Triangle, and a real Piano Sample.

Recording & Playback

Start Recording: Click the Record button.
Stop Recording: Click the Stop button.
Play Recording: Click the Play button to play your recording immediately. The progress bar will show how far you go. You can pause and resume whenever you want.

File Operations

Save Recording: After recording, click Save and select a location and filename to save your performance.
Load Recording: Click Load to open a previously saved file. You can try loading with the two pre-programmed songs in the music_examples folder.

Networking (Multiplayer Mode)

When opening the app, you are required to enter the server IP, port and username.
All your notes will be transmitted in real time to other connected users.
An indicator shows the number of users currently connected.

You can feel free to chat with partners and share thoughts on your collaboration. Just type your message and press Enter or click Send to send the message into the chat box. Messages from other users will appear instantly in the chat window.

Volume Control
Use the Volume Slider to adjust the global volume between 0% and 100%.

Metronome
A metronome is also built in the app. You can set the tempo and start it to help you with regularizing your practice.

Current note indicator
Aside from the metronome, there is also a note indicator that will show the current note you are playing, which I believe is helpful for discovering some chords and melodies.