

## **New music technologies for older learners and their teachers**

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Considerable attention is paid to new technology for the elderly, especially smart technology that can help them navigate uneven ground, find their way along tricky routes, use computers more simply, and many more. The value of creative pursuits for older persons is another growing field of interest.

However the creative arts are recognised as valuable for the older population, the potential beneficiaries are sceptical of their own abilities. To persuade them that they can learn and enjoy music in some active way calls for assistive solutions. Luckily there is a huge number of these for learning, practising, performing, and composing music. But it is largely unknown to traditional classical teachers, and to a lesser extent ignored by the popular learning and teaching music professionals.

This paper will refer extensively to the website - <http://musicappsforlearning.weebly.com/> in which the author has set out approximately 100 music apps [software, applications] according to a pedagogic classification, and will briefly explain the most important features of some examples in each category. The website is relevant and freely available to all musicians, music teachers, learners, technologists, researchers, and musical instrument creators who would be likely to benefit from knowing what is currently technically and digitally possible.

One of many research projects relating creativity in music to older people's well-being was "Music for Life: Promoting social engagement and well-being in older people through community supported participation in musical activities" (Creech et al (2013) in which the present author was involved. It was based on the view that insufficient attention had been paid to the potential for music-making to significantly improve older people's lives. The research explored how participation in community these older participants attributed significant social, emotional and health benefits to their music making. Many re-invented a prior musical self-concept, suggesting that musical opportunities early in the life-course may have a cumulative, long-term influence on resilience in older age.

However, the question left open was how to bring music more fully to older people who had no prior musical experience [other than listening and/or perhaps some singing). Here, it is 21st century technologies that offer a wide range of simple solutions. This technology is very similar to much other software in the non-music field. It gives musicians tools through which they can work more quickly and easily, and from which they can receive automated assistance. For instance, there are apps [software applications] that perform transposition from one musical tempo to another, or that will flag up errors when playing a specific piece, or that exploit the power of multimedia alongside music. Approximately 100 such apps are set out in the open access website

<http://musicappsforlearning.weebly.com/>

A few will be referenced in this paper.

The website is arranged by what a musician might want to do with any of them. (See chart below.) Thus, the organisation is in terms of the "what" and the "how" of learning music. For instance, the KNOWING page presents how musicians can develop their knowledge of and about music. All the other pages from PERFORMING to OTHER are about what musicians can do. The apps wo;; e useful for independent learners and musicians, and also for teachers of music at any level in any context. There are comments on music learning in the special section: TEACHERS' CORNER.

The general impact of these technologies is likely to be towards further independence of learning, performance, and creativity. This in turn would enhance motivation among people - young or old - who might otherwise not expect to be able to learn or perform or compose music. And, further, it will surprise non-musicians as well as musicians by offering them a wide range of ways of

incorporating musical elements into many different creative artefacts. Finally, the site can function as a MOOC without the need for adaptation of its contents so long as some activities are built up around learners' needs for knowledge, practice, performance, and creativity.

These apps have the potential to be of considerable value to learners and teachers, whether in classrooms or during private teaching. The range of these technologies is now considerable, such that, for instance, musicians have almost as many ways of writing and editing music as are available in ordinary text word processing software. The wide range of notation software to provide this has become very sophisticated. Overall, apps can be classified as pertaining to

- (a) the learning of content about music
- (b) the learning of the skills of performance
- (c) sharing performance and
- (d) creativity in music - with many sub-divisions in each section.

The website therefore follows the plan shown in the table below: [See attached slide]

All keywords in this table are hyperlinked within the text.		
[DT] = <u>digital tools</u>	[DA] = <u>digital automation</u>	
<b>Learning</b>		
1. <u>Input</u>	<u>KNOWING</u>	1.1 <u>Listening</u> [DT] 1.2 <u>Literacy</u> : Note-processing with automatic music recognition [DA] 1.3 <u>Independent</u> learning [DT] 1.4 <u>Search</u> : Identification of (finding) melodies etc. [DT]
2. <u>Activation</u>	<u>PERFORMING</u> Play/Sing/Conduct	2.1 <u>Imitating/playing-singing</u> along with [DT] 2.2 <u>Intelligent accompaniment Generating music automatically</u> [DA] 2.3 <u>Electronic instruments</u> [DT] 2.4 <u>Virtual Instruments</u> [DT] 2.5 <u>SHARING/Group playing online</u>
3. <u>Feedback</u>		<u>Automated Error Correction</u> [DT]
<b><u>Beyond Learning</u></b>		
	4. <u>CREATING</u>	4.1 <u>Sampling</u> [DT] 4.2 <u>Mixing</u> [DT] 4.3 <u>Composing/Improvising</u> [DT] 4.4 <u>Innovations</u> 4.4.1 <u>Hyperinstruments</u> [DT] 4.4.2 <u>Björk Biophilia</u> 4.4.3 <u>Linsev Pollak</u>
	5. <u>MULTIMEDIA</u>	<u>Media merge Visible Sound</u> [DA]
	6. <u>PUBLISHING</u>	6.1 <u>Producing</u> [DT]

		6.2 <a href="#">Broadcasting</a> [DA] and [DT]
	7. <a href="#">iPHONE</a>	<a href="#">Ways to Make Music on an iPhone</a>
	8. <a href="#">OTHER</a>	<a href="#">Music Futures</a> <a href="#">Non-music technology</a> of relevance to musicians
	9. <a href="#">LITERATURE</a>	Small selection

The following examples have been extracted from the much longer website referred to above.

## Input

### 1. KNOWING

#### 1.1 Listening [DT]

##### **Directional audio loudspeaker technology**

Directs the output sound to a specific person or limited space, so that others cannot hear it.

[http://www.holosonics.com/a\\_special.html](http://www.holosonics.com/a_special.html)

##### **GuitarToolkit** <http://itunes.apple.com/us/app/guitartoolkit/id284962368?mt=8>

Download GuitarToolkit and play 500,000 chord variation. Simply touch the notes on the fretboard that make up a chord, and GuitarToolkit tells you what that chord is. It also includes an accurate tuner and metronome.



##### **Karajan**

Music & Ear Trainer for practicing theory/aural skills.

[www.karajan-eartrainer.com/](http://www.karajan-eartrainer.com/)

#### 1.2 Literacy: Note-processing with automatic music recognition [DA]

Product reviews/comparisons 2011: <http://music-notation-software-review.toptenreviews.com/>

In order of best features:

[Sibelius First](#)

[Finale PrintMusic](#)

[MagicScore Maestro](#)

Forte



records tracks as fast as you create them, and captures changes as fast as you make them.

<http://www.forte-notation.eu/en/index.htm?gclid=COTuhqrP3asCFcYPfAodjE5UPQ>

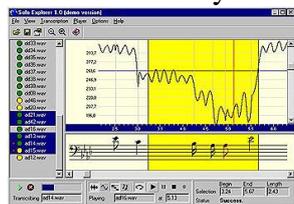
##### **Notes!** - Learn To Read Music

This app will help beginners learn the letter names for notes on the bass and treble clef ("F" on bass through to "G" on treble). Key letters can be set to any of these options: 1) C D E F G A B; 2) C D E F G A H

3) Do Re Mi Fa Sol La Si. For intermediate learners "**Piano Notes!**"

<http://visionsencoded.com/contact/>

**Solo Explorer** is a way to midi conversion, automatic music transcription (recognition), and music notation software for Windows. Open audio files or directly record your own performances. It returns a music score in a standard notation that can be played, edited, and saved. It has straight-forward and easy-to-use. It achieves high accuracy.



[www.recognissoft.com/](http://www.recognissoft.com/)

### 1.3 Independent learning [DT]

#### **Adventus Piano Suite Premier** - course

offers a complete piano course which takes you right from the basics A comprehensive interactive piano course for all ages. Learn to play over 500 graded pieces with detailed feedback.  
[www.adventus.com](http://www.adventus.com)

#### **ButtonBeats**

Play the piano with either your mouse or your computer keyboard.

Above the piano there is a drop down menu with a long list of songs for you to play on the piano using your computer keyboard. Just choose the song you want and click the "activate keyboard control" button on the piano. Then type out the letters listed next to the song name.

<http://www.buttonbeats.com/>

#### **Jam Studio**

is a music creator that not only lets you create music beats but also can help you write songs online. Also, you can learn how to download your music. You can create demo songs with just a few clicks, or backing tracks and karaoke songs. In addition, you can download your music in a simple way.

<http://www.jamstudio.com/Studio/index.htm> or review at

<http://www.killerstartups.com/Video-Music-Photo/jamstudio-com-the-online-music-factory#ixzz1dCLK1zQU>

**Online Music Composition Curriculum** includes [Noteflight® Crescendo](#) has three proficiency levels—Beginner, Intermediate, and Advanced. Each proficiency level includes seven comprehensive lessons that teach students how to compose: Instructional Videos/Assessment and Review /Composition Studio

<https://www.myinsidemusic.com/WhatIsInsideMusic.aspx>

#### **PianoAngel**



\* Swipe on chords and tap melody to play beautiful piano chord & melody with ease.

<http://www.promusicapps.com/pianoangel-drops-from-the-heavens/>

#### **Violin**

nTune:Violin Free By Cocoda This application was written by a violinist that needed an accurate application **for tuning**. It uses ACTUAL recorded violin notes and not generated sound effects. Included playback options of Arco (bowing) or Pizzicato (plucking). Contains the basic tuning of G, D, A and E. Just push the button for the corresponding note. There are settings for playing one note with each click or a continuous loop with silence between to allow you to tune.

[Cocoda Web Site nTune:Violin Free Support](#)

## 1.4 **Search:Identification of (finding) melodies etc. [DT]**

### **Gracenote**

Music similarity identification, audio thumbnailing., automatic chord recognition, identify music files. So called metadata such as artist, title, and genre are accessed from the Gracenote Media Database and displayed in Nero Burning ROM. The identified metadata is written to the music file and is then available..[www.gracenote.com](http://www.gracenote.com)

**Midomi** - If you have a tune that's stuck in your head, just grab a microphone, hum that tune yourself and Midomi will be able tell you what that song is. <http://www.midomi.com/>

### **Soundmouse**

technology was engineered specifically for automated recognition of music in difficult audio environments such as music buried within television broadcasts. It can accurately recognise very short durations of music in distorted environments where layers of additional sound such as voiceover, atmosphere and effects are mixed in with the music. Its systems have been engineered to handle the large scale reporting demands of the broadcast industry so that recognition is accurate and complete, and processing is genuinely scalable. [http://www.soundmouse.com/aboutus/about\\_us.html](http://www.soundmouse.com/aboutus/about_us.html)

## **2. ACTIVATION**

### **2.1 PERFORMING - Play/Sing/Conduct**

#### **Singer's Vocal Warmup**

This App is for singers and musicians who need to quickly warm up or work out their voice. <http://www.pcworld.com/appguide/app.html?id=319440&expand=false>

#### **VocaLive**

VocaLive tames your vocals provides singers and vocalists with a suite of 12 real-time professional vocal effects along with a capable recorder for studio quality sound in a portable package.,.,the perfect vocal solution. <http://www.ikmultimedia.com/vocalive/features/>

#### **2.1.1 Imitating/playing-singing along with [DT]**

#### **Karaoke Vocal Remover Software**

Start with a song you've downloaded from the Internet, music services, or extract a song from any music CD. Using the Karaoke Vocal Remover Software, your computer will reduce or remove vocals from the music. ... A built-in multi-track editor allows you to change the length of the song, cut portions out of the song, and even record voice with the music. <http://www.make-your-own-karaoke.com/index.htm?gclid=CMrnq4-YqawCFYEZ4QodPWUoAA>

#### **Play piano along with a virtuoso violinist.**

Helpful hints provided so you can keep up with the music. Follow exactly as the violin part or make up your own accompaniments: video demo: <http://bit.ly/playalongwith>

### **2.2 Intelligent accompaniment [DA]**

#### **Harmony Navigator 2.7.3**

<http://www.hitsquad.com/smm/programs/HarmonyNavigator/>

**Harmony Navigator** is an intelligent brainstorming and composition tool for songwriters and musicians of all styles. ... The intelligent simulator creates excellent accompaniments, even if you're not yet good

at playing an instrument yourself. Unleashes your imagination and grows with your skills.  
More such software is listed at [http://www.hitsquad.com/smm/win95/AUTO\\_ACCOMPANIMENT/](http://www.hitsquad.com/smm/win95/AUTO_ACCOMPANIMENT/)

## 2.3 Electronic instruments [DT]

### Keyboards [free standing]

List at <http://www.digitalpianoskeyboards.com/ke/keyboards/>

### Octonic

A revolutionary new musical instrument that works with sensors which are activated when a hand is waved over them. See this website [Josh's website](#) for more information and a video.



## 2.4 Virtual Instruments [DT]

### Hang



[Avacata](#) Get busy on our version of the infamous steel instrument. Start it up, bang away, record your own loop to play along with.

### Magic Piano [podmap.net/](http://podmap.net/)



“Play timeless pieces on spiral and circular keyboards, or follow beams of light – mastery requires only imagination. Play alone, or travel through a warp hole and play Piano Roulette with other performers across the world. Create your own music or enjoy the app’s 45 free classic and popular tunes. No practice or patience required!” [www.smule.com/magicpiano](http://www.smule.com/magicpiano)

**nTune:Violin Free:** written by a violinist that needed an accurate application for tuning. It uses ACTUAL recorded violin notes and not generated sound effects. Included playback options of Arco (bowing) or Pizzicato (plucking). [Cocoda Web SitenTune:Violin Free Support](#)

**Pianist Pro** a virtual piano designed specifically for the iPad, [mooowmusic.com/PianistPro/index.htm](http://mooowmusic.com/PianistPro/index.htm)

### PocketGuitar by Shinya Kasatani



turns your iPhone or iPod touch into a virtual guitar. You can press and strum strings, just like a real guitar. <http://cellphoneforums.net/apps/music-video-9/pocketguitar-shinya-kasatani-18565/>

### Ukulele

for on your iPhone, iPad, and *iPod touch*.

<http://itunes.apple.com/us/app/ukulele-chord-kumu/id318696242?mt=8>

### PlayAlong Violin

listens to your playing and guides you through the melody of the selected song. Choose to play any of the 250+ songs from our music library. You can share your experience by emailing friends and relatives a recording of your performance. <https://itunes.apple.com/us/app/playalong-violin/id605522141?mt=8>

## 2.5 Generating music automatically [DA]

### Bloom

a mesmerizing app from ambient music pioneer Brian Eno, turns your iPhone into a 21st-century music box. Touch the screen to layer and loop sounds. Then sit back and enjoy the elaborate patterns and relaxing soundscapes.

<http://www.generativemusic.com/bloom.html>

### RjDj

#### Create a soundtrack.

Turn the world around you into a song with RjDj. This music-making app picks up ambient sounds, then bounces them back through your headphones. Record as you go and enjoy your creative compositions again later.

<http://itunes.apple.com/us/app/rjdj/id290626964?mt=8>



## 3. SHARING Group playing online [DT]

**eJamming** introduced eJamming AUDiiO, a new Internet service and software for musicians that lets you make music and collaborate with others in real-time over the Internet.

<http://www.synthtopia.com/content/2007/01/30/ejamming-lets-musicians-jam-via-internet/>

<http://www.onlinejamsessions.com/ojs>

### Cocompose.com

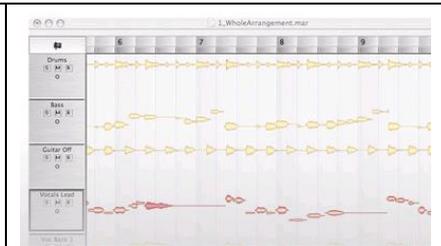
Songs can be developed and enhanced in an evolutionary process by giving anybody from all over the world the possibility to join or create an open music project and that way bring in his individual talent to this process. <http://www.cocompose.com/music/>

## 3. Feedback

### Automated Error Correction of [DT]

## Celemony Melodyne DNA pitch correction music

The removal of wrong notes from piano recordings, incredible harmonic and rhythmic freedom. using Melodyne software - tone-deaf, no-talent howlers can have their vocals corrected with a couple of clicks and drags of the mouse. [www.celemony.com/](http://www.celemony.com/)



**HarmonyBuilder (Educational)** is a music theory software that enables composers of 4-part harmony to check for errors in harmony and counterpoint. Color-coding is used to indicate harmony errors <http://www.harmonybuilder.com/educational.html>

## Beyond Learning

### 4. CREATING and MULTIMEDIA

#### 4.1 Sampling [DT]

##### Samplers

10,000 sounds and 90 GB of samples cover a lot of sonic territory - from hip-hop to film scores, from pop to techno to classical and beyond. KOMplete 7 includes everything from the dirtiest synths to heavenly choirs, pounding drums and mesmerizing effects. <http://www.native-instruments.com/#/en/products/producer/komplete-7/?page=1516>

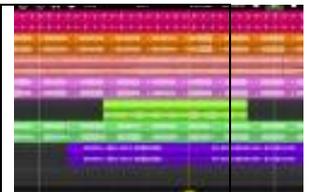
#### 4.2 Mixing [DT]

##### Remix it with Shapemix

Remix, Create and Share A revolutionary and intuitive way to interact with music you love.

Mix in space – See your audio as you hear it.

- \* Multi-touch – Move and manipulate several audio channels at once.
- \* Visual feedback – Understand how effects change sounds in real time.
- \* Simply drag and drop complete songs or tracks stored in your Shapemix Collection to create an original music mix.
- \* Import a vocal track, lower the drum beat, and extend the guitar solo all with the touch of your finger.



<http://www.promusicapps.com/remix-it-with-shapemix/>

#### 4.3 Composing/Improvising [DT]

##### AudioTool

is a free web based music creator. You can click on the ‘Launch App’ to go ahead and create your own music. It will provide you with different music instruments and effect boxes together with a mixer to create music. [AudioTool.com](http://AudioTool.com).

##### BeatStudio

to make a multi-layered percussion backing track for your guitar songs, we’ve got 30 professionally sampled percussive instruments <http://frontierdesign.com/BeatStudio/>

## MasterWriter 2.0 - Lyrics

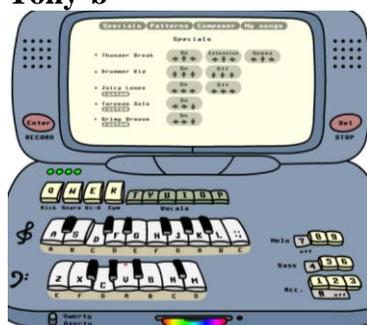
provides the songwriter with everything he or she needs in one easy to use program.

<http://www.masterwriter.com/overview.html>

## Noteflight

***Inside Music*** Composition Studio Online Music Composition Curriculum includes three proficiency levels—Beginner, Intermediate, and Advanced. Each proficiency level includes seven comprehensive lessons that teach students how to compose: Instructional Videos/Assessment and Review /Composition Studio <https://www.myinsidemusic.com/WhatIsInsideMusic.aspx>

## Tony-b



Handdrawn interface is loads of fun; emulates a sequencer and a sampler, access typical keyboard sound samples. <http://www.tony-b.org/>

## 4.4 Innovations [DT]

### 4.4.1

#### Hyperinstruments

**Tod Machover -Professor of Music and Media - MIT Media Lab**

<http://www.thersa.org/fellowship/journal/archive/winter-2008/features/guitar-hero>

Extracts: This field has undergone a revolution in the past several years through the huge public success of the Guitar Hero and Rock Band videogames that demonstrate the public's willingness to dive in and immerse themselves in music-making, given the right environment..... Technology can take advantage of our skills and compensate for our limitations. ....

Systems such as **Drum-Boy** and **Joystick Music** allow non-musicians to shape and create complex and interesting musical pieces by using gestures or word descriptions to influence the real-time interactive environment. ....gestures to control huge masses of sound, touch a special surface to make melodies and use your voice to make a whole aura.

This new area has led to research in using music for early detection of Alzheimer's disease, for social and emotional adaptation for autistics, for aiding physical and mental rehabilitation and for a growing number of other areas such as **Hyperscore** that resulted in a series of public concerts featuring music by patients.. A new category of interfaces **Personal Instruments** takes account of [individual] style and detail, and compensates for [individual] physical limitations.

### 4.4.2

#### Björk *Biophilia* - music, technology and nature

[http://en.wikipedia.org/wiki/Bj%C3%B6rk#2011.E2.80.93present:\\_Biophilia.2C\\_music.2C\\_technology\\_and\\_nature](http://en.wikipedia.org/wiki/Bj%C3%B6rk#2011.E2.80.93present:_Biophilia.2C_music.2C_technology_and_nature)

***Biophilia*** is the musical project and overall eighth full-length studio album by Icelandic recording artist [Björk](#).<sup>[3][4]</sup> It will be released in the form of a series of [apps](#).<sup>[8]</sup> *Biophilia* - the world's "first app album" in collaboration with [Apple](#).<sup>[9]</sup> Björk has described the project as a [multimedia](#) collection "encompassing music, apps, internet, installations, and live shows".<sup>[10]</sup> Björk discussed how the apps would enable people to play and understand the songs and ideas in different ways

## 5. MULTIMEDIA

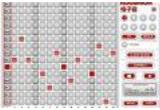
### Media merge - Visible Sound [DA]

Visible Sound provides a 3-dimensional, colorful, visual representation of the sounds heard by the iPad's microphone or an attached audio headset <http://www.promusicapps.com/visible-sound-hd/>

## 6. PUBLISHING

### 6.1 Producing [DT]

#### Koushion takes control



Koushion allows you to wirelessly control your music production software on your Mac or PC over a network, with tone matrix and variety of settings <http://www.promusicapps.com/koushion-takes-control/>

#### PocketLoops



Create your own beats and melodies by playing the keys to drop a beat, melody or effects. [https://www.youtube.com/watch?v=rbAeux\\_2Q0](https://www.youtube.com/watch?v=rbAeux_2Q0)

### 6.2 Broadcasting [DA] and [DT]

#### Editors Keys' Vocal Booth Pro

is an all-in-one voice recording solution aimed at both the broadcast and music-making markets. You get a microphone and shock mount, a pop-shield (for removing annoying pops from the beginning of plosive 'p' and 'b' sounds), a mic stand and the Vocal Booth Pro itself, a 'soundproof' shield designed to stop your voice reflecting around the room and thus colouring the sound.

**EditorsKeys.com** offers USB Microphone, Dynamic Microphone, Studio Headphones, Shortcut Keyboard, <http://www.editorskeys.com/>

## 7. Ways to Make Music on an iPhone

The following collection of apps are simply those which I found to be the greatest combination of fun and function, but in no way is this a finite list. [Isaac Garfinkle](#)

1 – Argon: Monophonic Virtual Analog Synthesizer (by IceGear)

2 – Filtatron (by Moog Music Inc.)

real-time audio effects suite and powerful studio tool for your iPhone or iPod touch\*. [Product Introduction @ filtatron.moogmusic.com](#)

3 – Jasuto Pro Modular Synthesizer (by Chris Wolfe)

allows you to visually construct your own synths/effects, and use them to make sequences all on your device! [Product description @ Jasuto Pro App Store Page](#)

#### **4 – TechnoBox 2 (by AudioRealism)**

features such as dual 303s and drum machines, export recordings of songs and SoundCloud integration [TechnoBox 2 @ www.audiorealism.com](#)

#### **5 – Grünvtron (by Sound Trends LLC)**

to create a thumping bass line to fill the dance floor or a heart-wrenching lead line [Grünvtron Features @ www.soundtrends.com](#)

#### **6 – Noise.io**

the true 21st century synthesiser to let musicians create, instead of reading manuals.– [Features Overview @ http://noise.io](#)

#### **7 – iSyn: Virtual Music Studio**

a virtual music studio for Apple iPhone and iPod Touch for fun live jam sessions or pattern-based music creation.— [Product Intro @ www.isynapp.com](#)

#### **8 – SoundGrid (by Mifki)**

to create stunning audio-visual performances in a moment and wherever you are [Product Description @ www.Mifki.com](#)

#### **9 - iGog: Massive Drums (by WaveMachine Labs)**

multisampled drum machine — [Product Description @ www.WaveMachineLabs.com](#)

#### **10 - SoundPrism (by Audanika)**

a glimpse of a more graphical future for music software design.” Easily create harmonies. Build loops graphically [Peter Kirn @ Createdigitalmusic.com](#)

11 – iDrum (all versions) <http://www.izotope.com/products/audio/idrum/iphone.asp>

12 –Voice Memos (comes as standard with the iPod touch) [for iPad for iPad on the iTunes App Store itunes.apple.com/gb/app/...memos.../id364295267?mt....](http://itunes.apple.com/gb/app/...memos.../id364295267?mt....)

13 –and **Virtuoso Piano Free**, a new iPod touch, iPhone iPad instrument. Learn and play the piano anytime and anywhere. <https://itunes.apple.com/us/app/virtuoso-piano-free-3/id391994966?l=es&mt=8>

## **8. OTHER**

### [Metropolis Ensemble](#)

Loops and rhythms composed by Jakub Ciupinski. Music "waiters" (composer Jakub Ciupinski and conductor Andrew Cyr) will greet you with iPhones that serve as a real-time composition system, <http://www.metropolisensemble.net/concerts/2009/newmusic/notes.php>.

[Musical Futures www.musicalfutures.org/](http://www.musicalfutures.org/) -

### [Stanford Mobile Phone Orchestra's Music for Iphones concert](#)

<http://www.nytimes.com/2009/12/05/technology/05orchestra.html> (retrieved February 19, 2010).

### [Non-music technology of relevance to musicians](#)

[Second life, VLEs, PLEs, Wikis Etc](#)

## 9. LITERATURE

Creech, A., Hallam, S., Gaunt, H., Pincas, A., McQueen, H., & Varvarigou, M. (2013). The role of musical possible selves in supporting subjective well-being in later life. *Music Education Research*, *Published online: 28 Apr 2013*.

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### **Biography**

Anita Pincas is Visiting Fellow, formerly Senior lecturer, at the Institute of Education, University of London. Her major academic fields have been English language and literature, new technologies especially those relevant to learning, online and/or distance education, and, most recently, ageing studies in which she initiated a pioneering course for the Institute. She has taught and supervised at all levels from bachelors, through masters and doctoral work. Though not a musician, she takes an active interest in music learning and creativity, having a singer-songwriter son. She has published on the comparison between language and music as different modes of communication but similar in learning modes.