Canola – Application and Framework

diving into canola's extensible rich gui framework

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agenda

- introduction and history
- canola's general overview
- tutorial of a simple plugin
- canola's future
- google summer of code results

introduction

- 1991: clipper text ui
- 1998: tcl/tk — internet!
- 1999: perl cgi-bin
- 2000: gtk, qt
- 2001: php — universtiy: time + smart friends!
- 2002: freevo (pygame)
- 2003: turbogears, django, zope
- 2006: canola1 (sdl, gobject, c) — indt!
- 2007: canola2 (python-efl)
- 2009: memphis — profusion!

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- first contact with python — after perl, gotta love it!
- first gui architecture
- heavy usage of xml to describe ui — ouch!
- lots ot time to play and experiement technologies

Video

Video Library

Shared Video

- excellent concept designed by marcelo (handful)
- joined the project late
- took over technical leadership

- unfortunately closed source and dead

- low level graphics with sdl
- abusing c:
    - object orientation
    - introspection
    - callbacks

- manual reference counting

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- graphics looked great
- user experience was awesome
- people liked it — had a community even being closed!

- excellent model-view-controller (mvc) usage
- **excellent mvc-based plugin system!**

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My music

My photos

My videos

Settings

- even more animations — and thus callbacks!
- even more features — then code and so objects!
- 3rd party extensible — you may not be as careful!
- and do it all in 4 months… — more LoC, so time!

- **python:** just a high level language would do it
- **evas:** required a powerful **and fast** canvas
- **edje:** first overlooked, then our salvation
- **helper processes:** proved very useful
- **model-view-controller:** improved over canola1
- **plugins:** similar to canola1

- **atabake:** plays media — help licensing issues
- **downloadmanager:** with resume support
- **canola-thumbnailer:** thumbnail generator
- **canolad:** maintains media database, scans files
- **canola:** graphical user interface

- canola itself is just a terra-plugin launcher
- from **model**, get a **controller** that loads a **view**
- similar to mime-types and their handlers
- `MainController` like operating system kernel
- **task:** main entry point, like OS processes
- all in **one** process, **cooperative** workloads!
- tasks offload heavy or blocking operations
- don't need composite manager, so fast rendering

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canola, terra, getting confused!

- legal and licensing, again…
- terra (soil in portuguese) provides the framework
- canola is one application — maybe would be closed

- stupid analogy "canola (oil) comes from terra (soil)"

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- **core:** mvc base, plugin loader, manager and task
- **ui:** lists, grid, screen and other widgets
- **utils:** misc stuff that did not fit elsewhere

- ask `terra.core.Manager` by `terra_type`
- **regular expression** enables fancy queries:
    - all plugins matching "`^Model/Status/[^/]+`"
- **filter** will try fallbacks
    - what handles
      "`Model/Media/Audio/Local`"?
    - tries "`Controller/Media/Audio/Local`"
    - or fallback to "`Controller/Media/Audio`"
    - or fallback to "`Controller/Media`"
    - or fallback to "`Controller`"
    - or fail!
- fallbacks provide generic code and allow extensions

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- plugin directory specified in /etc/canola.conf
- plugins specified as a directory or zip file
- plugins provides meta information in
  plugins.info (ini format)
    - section name defines plugin name
    - modname: python module access (iradio.model)
    - enabled: boolean that provides default value
    - rank: sort/priority order
    - filter_map: list (one per line): with
      terra_type - class

tutorial: create your simple plugin

```
user$  mkdir urlbookmark
user$  mkdir urlbookmark/urlbookmark
user$  touch urlbookmark/__init__.py
user$  touch urlbookmark/urlbookmark/__init__.py
```

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```
$EDITOR urlbookmark/urlbookmark/model.py

from terra.core.manager import Manager
from terra.core.task import Task
from terra.core.model import ModelFolder, Model

manager = Manager()
```

import required modules and acquire the manager singleton

```
PluginDefaultIcon = manager.get_class("Icon/Plugin")
class Icon(PluginDefaultIcon):
    terra_type = "Icon/Folder/Task/Audio/URLBookmark"
    icon = "icon/main_item/music"
```

- terra_type must match Folder.terra_type (s/Model/Icon/)
- icon defines edje group to use.

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```
class Folder(ModelFolder, Task):
    terra_type = "Model/Folder/Task/Audio/URLBookmark"
    terra_task_type = "Task/Folder/Task/Audio/URLBookmark"

    def __init__(self, parent):
        Task.__init__(self)
        ModelFolder.__init__(self, "URLBookmark", parent)

    def do_load(self):
        for u in ("url1", "url2", "url3"):
            URLBookmark(u, self)
```

ModelFolder.do_load() is called on first ModelFolder.load()

```
AudioModel = manager.get_class("Model/Media/Audio")
class URLBookmark(AudioModel):
    terra_type = "Model/Media/Audio/URLBookmark"

    def __init__(self, url, parent):
        AudioModel.__init__(self, url, parent)
        self.title = url
        self.uri = url
```

set common properties used by media player

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```
$EDITOR urlbookmark/plugins.info

[URLBookmark Model]
modname = urlbookmark.model
enabled = True
rank = 255
filter_map = Icon/Folder/Task/Audio/URLBookmark - Icon
             Model/Folder/Task/Audio/URLBookmark - Folder
```

have canola/terra to know about it

```
user$  cp urlbookmark /usr/share/canola/plugins
user$  terra-rescan-collections -c /etc/canola.conf
user$  terra-list-plugins -c /etc/canola.conf
```

terra parses plugins.info and compiles optimized meta
information in plugins.pickle

- create your own controller that creates your custom view
- view uses `terra.ui.screen.Screen`
- no need to write everything: inherit from similar classes

canola's future

- it's mostly ready, but **needs work:**
    - refactor of some code (media players screens)
    - improvements to notification area
    - documentation
    - more plugins!

- improve applications use the same base:
    - memphis, in-car entertainment
    - carman
    - needs more!

we need more developers!

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gsoc results

twitter plugin

20:17 **Home** □■□□

marceloeduardo
http://johnnyholland.tv/ | For all your Interaction Design Needs, a handful of pre...
about 31 minutes ago from Canary

nicholasdr
RT @davidstamm: Facebook's engineering group has a Facebook page. Fascinat...
about 34 minutes ago from TweetDeck

kasthomas
RT @Knexus: #Twitter considered for the Nobel Peace Prize? http://tinyurl.com...
about 35 minutes ago from web

newsycombinator
Hey, Fred, the VC Model is Broken http://bit.ly/174pXV
about 46 minutes ago from API
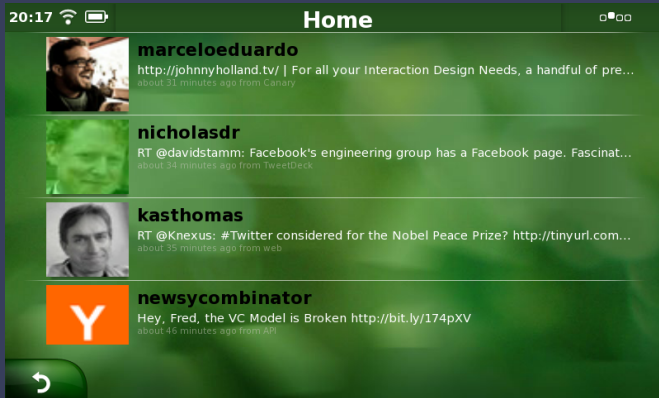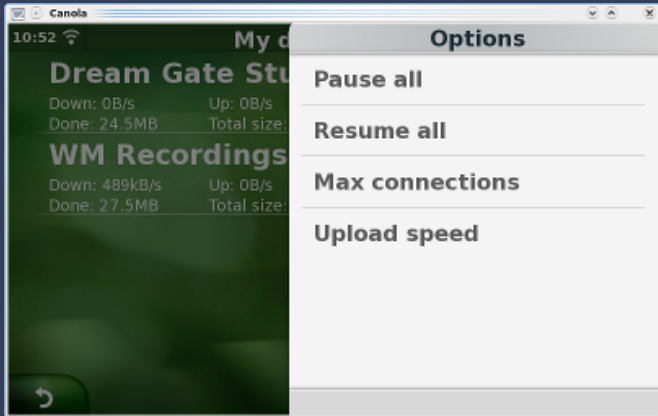
student: Kasun Herath
mentor: Eduardo Lima (etrunko)

torrent plugin

student: Lauri Vosandi
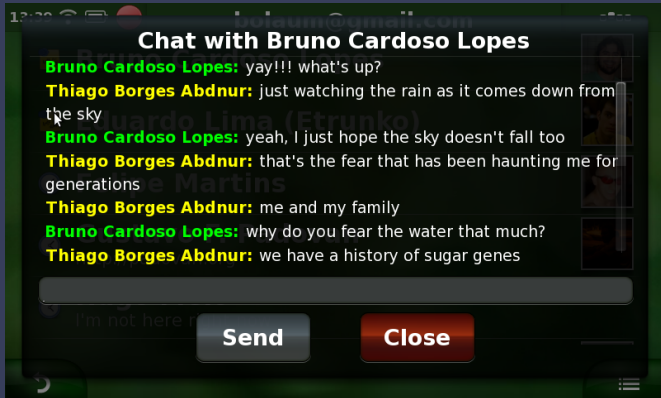**mentor:** Luís Felipe Strano Moraes (lfelipe)

picasa plugin

Comments

49 comments for this photo

quin contrast de colors

Cool ;)

great focus

good

cool

красиво (=
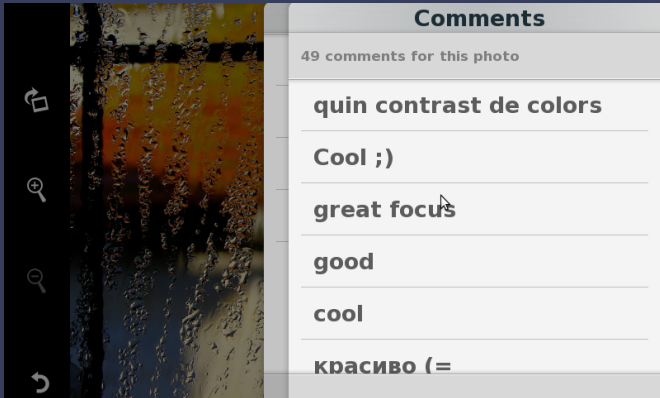
student: Andrei Mirestean
mentor: Gustavo Lima Chaves

instant messenger plugin

Chat with Bruno Cardoso Lopes

Bruno Cardoso Lopes: yay!!! what's up?

Thiago Borges Abdnur: just watching the rain as it comes down from the sky

Bruno Cardoso Lopes: yeah, I just hope the sky doesn't fall too

Thiago Borges Abdnur: that's the fear that has been haunting me for generations

Thiago Borges Abdnur: me and my family

Bruno Cardoso Lopes: why do you fear the water that much?

Thiago Borges Abdnur: we have a history of sugar genes

Send   **Close**

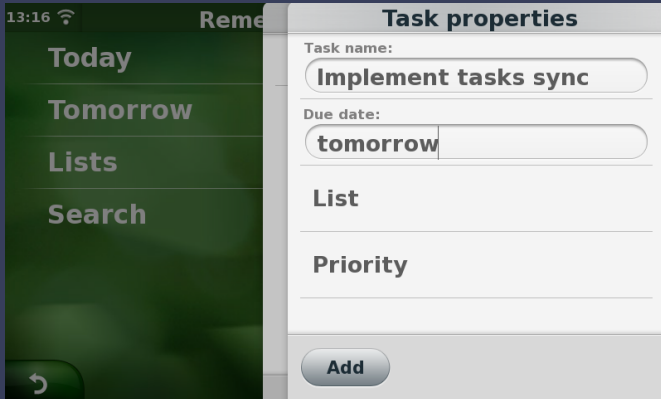**student:** Thiago Borges Abdnur (bolaum)
mentor: Rafael Antognolli

remember the milk plugin

student: Andrey Popelo
mentor: Ulisses Furquim (Ryback_)

thanks!

Gustavo Sverzut Barbieri

meet me outside for more about graphics, gui, canola,
linux, embedded, mobiles, profusion... **beers!**

Get this presentation file at
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