

dataflower



Harnessing heterogeneous
parallelism for creative
applications

Pedro Ângelo pangelo@void.io
Digital Media PhD (FEUP / UT Austin|Portugal)
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Libre Graphics Meeting 2013

FLOSS+Code Art

Good tools with great communities

Processing, OpenFrameworks, Pure Data, Shoebot, Pycelling

High quality work being produced with them

Entering university curriculums

Shaping the dynamics of contemporary art practice

multi-disciplinarity, free experimentation, peer-production

Pushing Limits

Artists push at the boundaries of computing
ever since there were computers

Modern digital artworks require complex processing
realtime 3D graphics, audio synthesis, video filtering, computer
vision, machine learning, distributed networking

Hardware is evolving to keep up with demand
multi-core processors, GPU processors, embedded DSPs, FPGA

Parallel Problems

Scaling single processor frequencies not enough
problems with power consumption, heat, memory bandwidth

Heterogeneous parallel architectures are here
many specialised processors working together

Parallel programming is hard
not a simple linear flow of instructions anymore

Programming tools need to evolve
languages, libraries, IDEs, cognitive models

We can do more



FLOSS coding tools should support our practice

realtime manipulation

free experimentation

peer production

resource sharing

dataflower

Environment for developing creative applications

uses dataflow to express data-driven parallel computation

Free as in Freedom

Low level C++ library

embed dataflow primitives into applications

parallel scheduling of execution graphs

High level IDE

semantic zooming

domain specific views

realtime collaboration

realtime feedback

status

Just about to become fun

research proposal submitted

low level library coding started

Proof of concept code

scheduling simulator: gitorious.org/itamae

dataflow API: gitorious.org/microflow

Shiny new project website

dataflower.org

You can help

criticism, ideas, proposals, feedback

creative coder survey

How do you use your tools?

What are you missing?

visual identity / UI design

What should this tool look like?

use cases

What problems could this tool help solve?

coding

Thank You



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pangelo@void.io