



Glumpy

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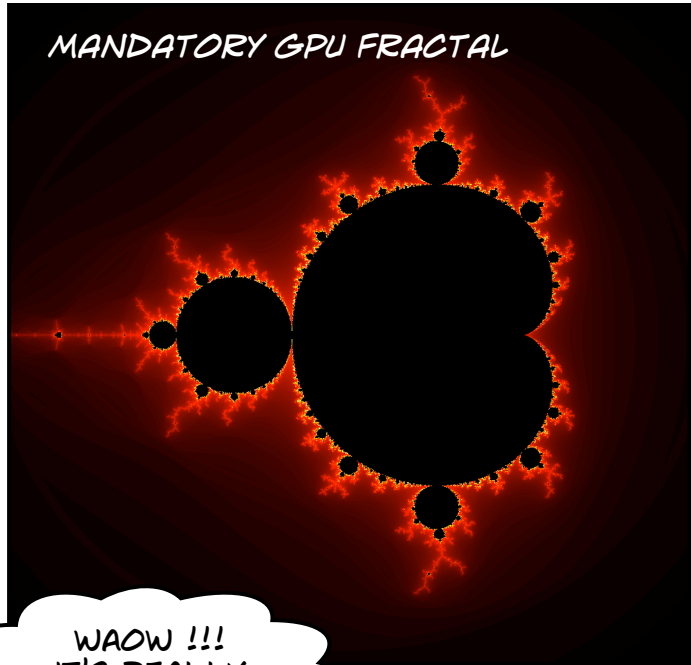
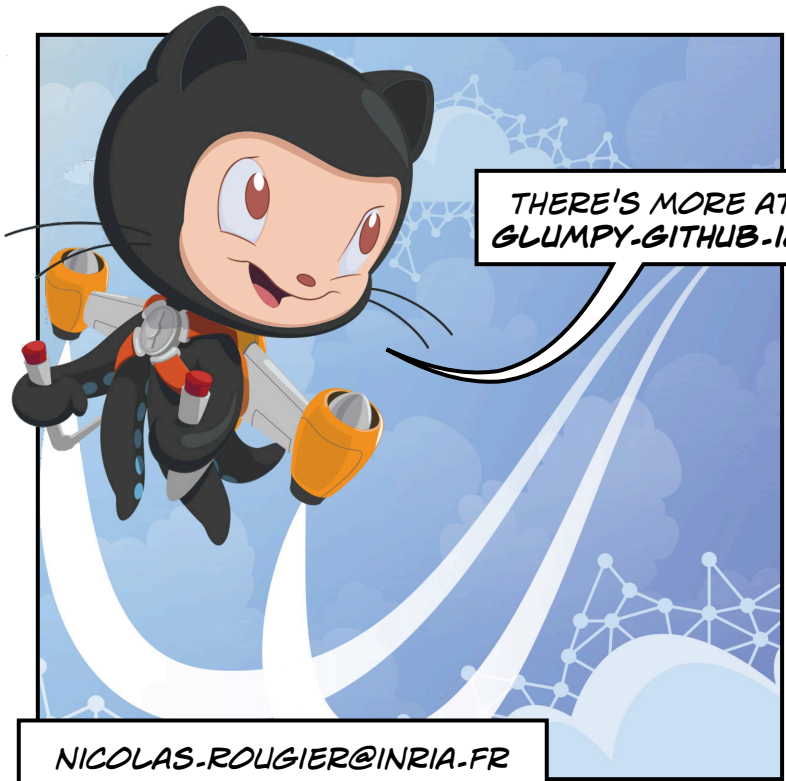
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BSD
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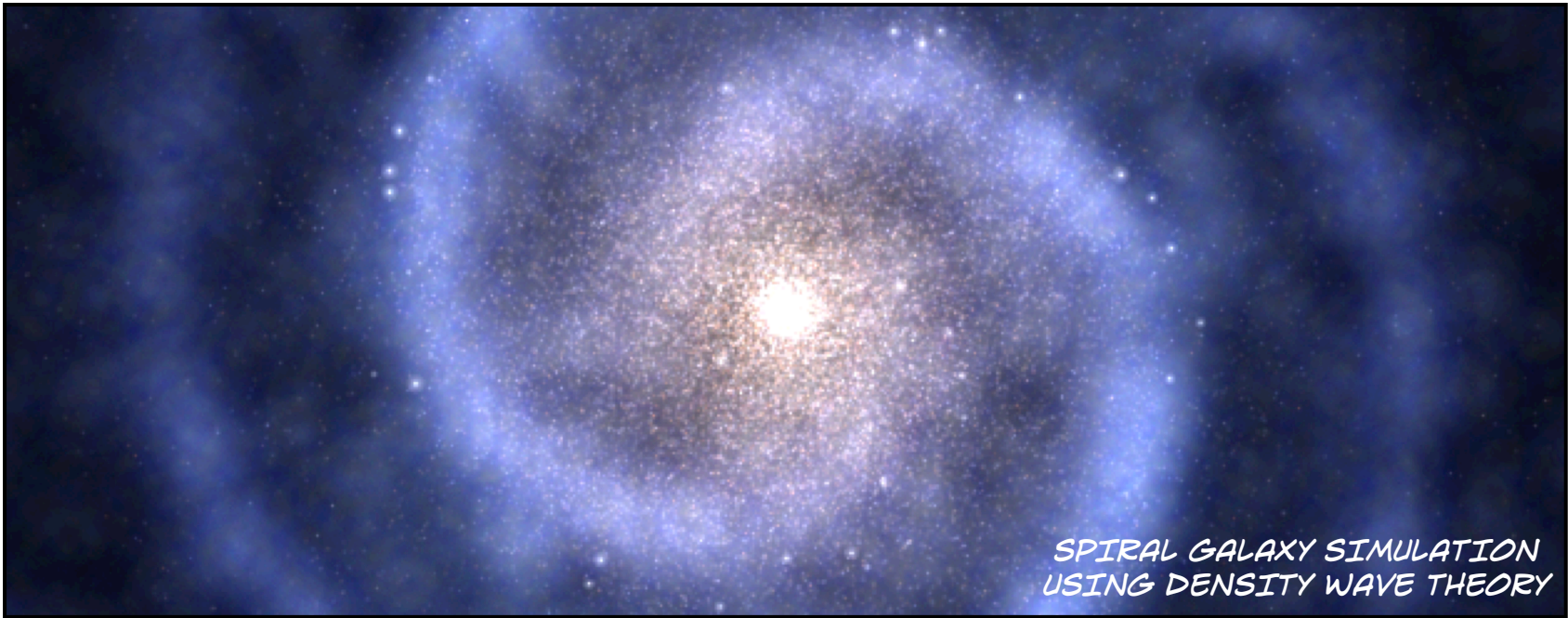
GLUMPY

OPENGL+NUMPY

FAST, SCALABLE AND BEAUTIFUL SCIENTIFIC VISUALIZATION



MANDATORY GPU FRACTAL



SPIRAL GALAXY SIMULATION
USING DENSITY WAVE THEORY



REALTIME FLUID
SIMULATION ...

...USING GPU

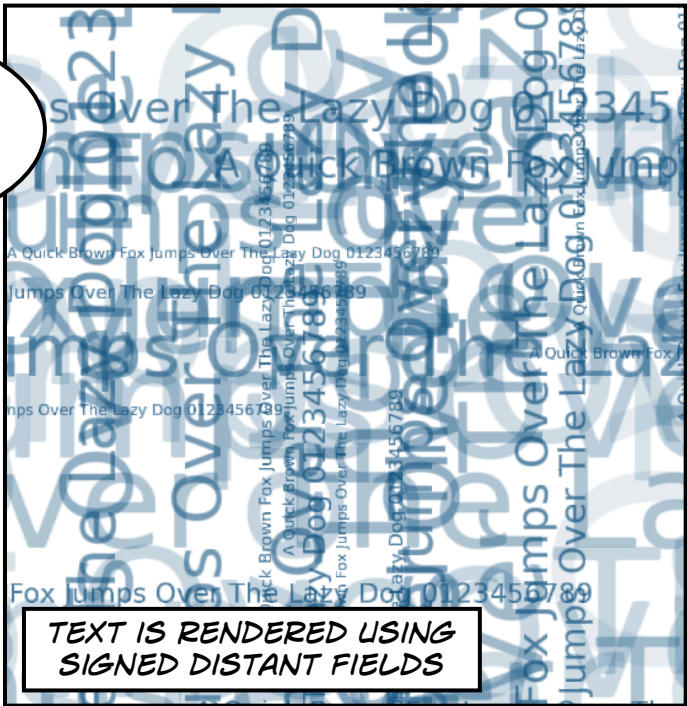
WAOW !!!
IT'S REALLY
SUPER FAST !



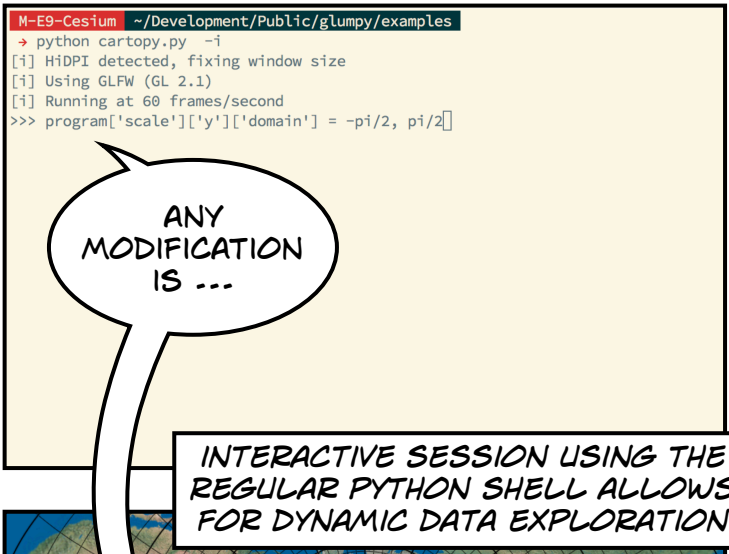
400 FPS ON A MACBOOK PRO



ANY NUMBER
OF ISOLINES
ON THE GPU

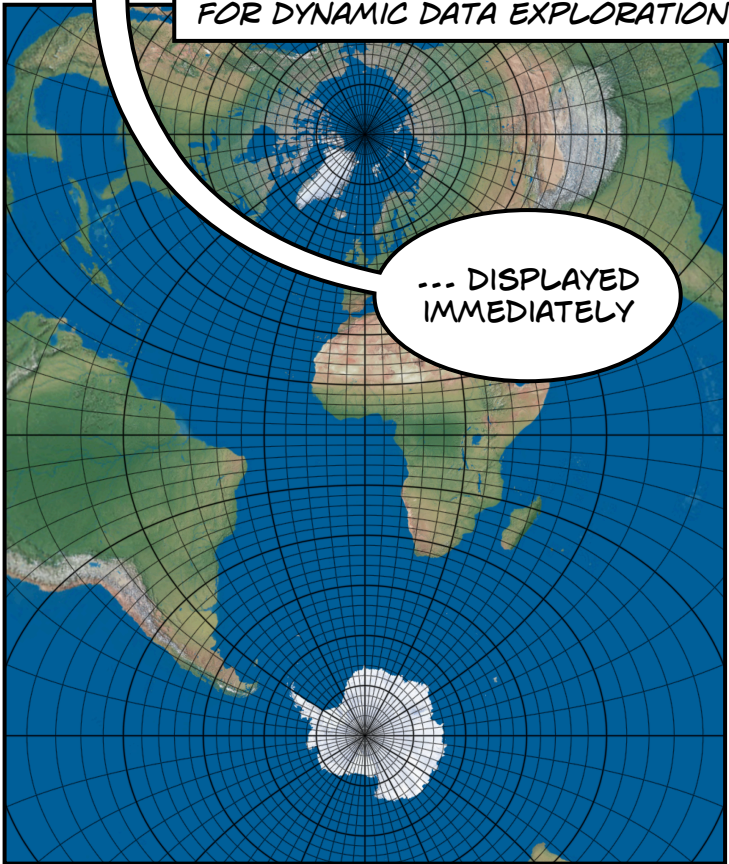


TEXT IS RENDERED USING
SIGNED DISTANT FIELDS

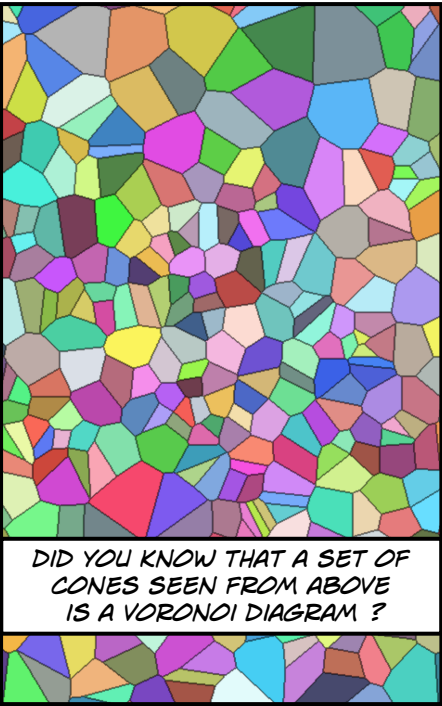


ANY
MODIFICATION
IS ...

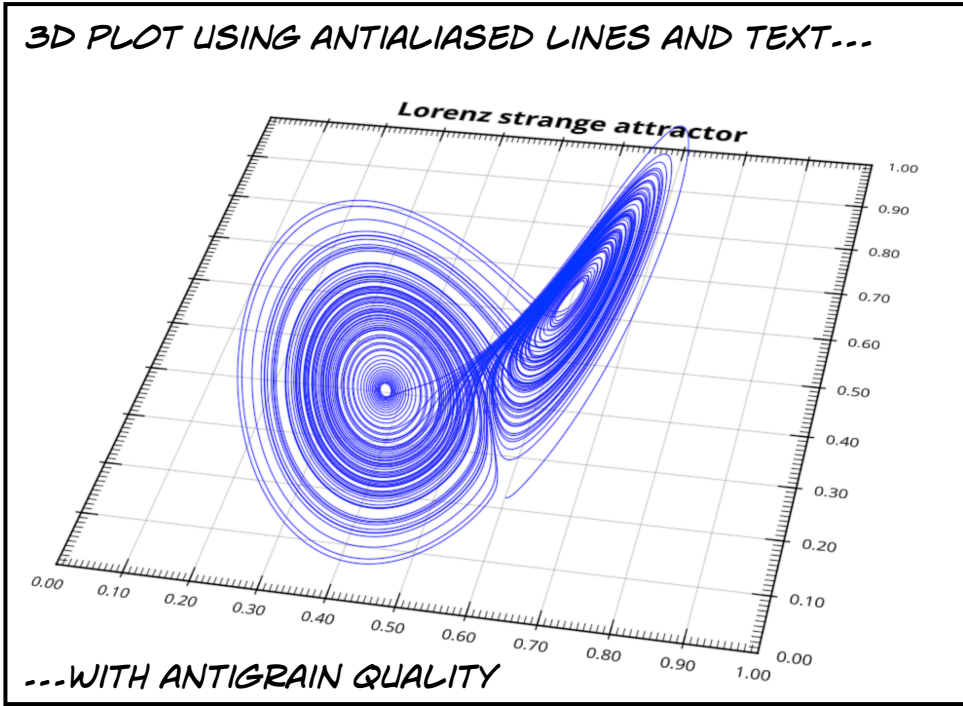
INTERACTIVE SESSION USING THE
REGULAR PYTHON SHELL ALLOWS
FOR DYNAMIC DATA EXPLORATION



... DISPLAYED
IMMEDIATELY



DID YOU KNOW THAT A SET OF
CONES SEEN FROM ABOVE
IS A VORONOI DIAGRAM ?



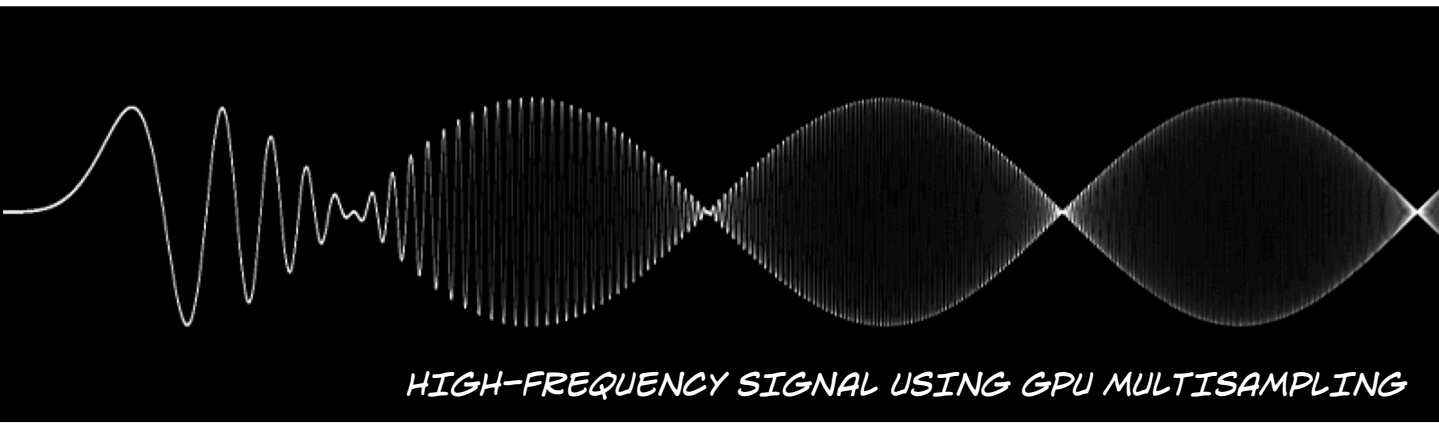
3D PLOT USING ANTIALIASED LINES AND TEXT...

Lorenz strange attractor

...WITH ANTIGRAIN QUALITY



320 REALTIME SIGNALS
(1,000 POINTS EACH)



HIGH-FREQUENCY SIGNAL USING GPU MULTISAMPLING

GLUMPY IS A PYTHON LIBRARY FOR SCIENTIFIC VISUALIZATION THAT IS BOTH FAST, SCALABLE AND BEAUTIFUL. GLUMPY OFFERS AN INTUITIVE INTERFACE BETWEEN NUMPY AND MODERN OPENGL.

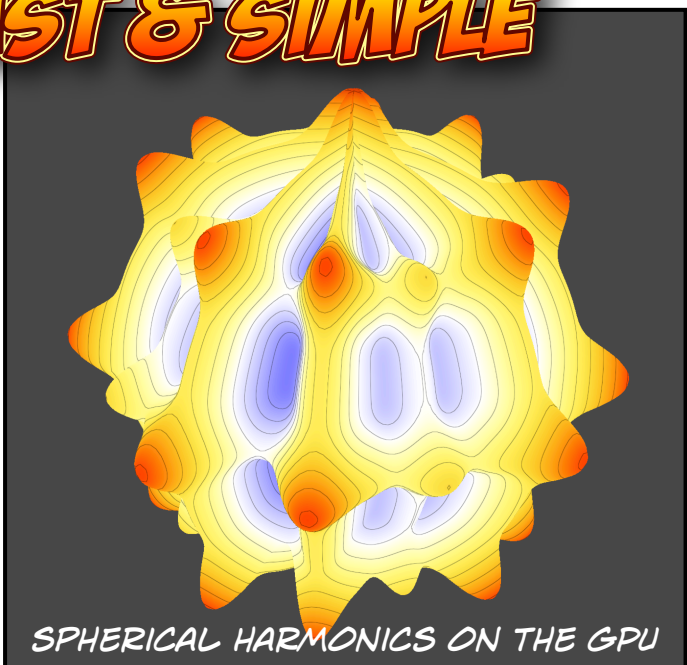
NUMPY ARRAYS ARE TRACKED AUTOMATICALLY SUCH THAT ANY CHANGE ON THE CPU IS REFLECTED AUTOMATICALLY ON THE GPU, MAKING THE INTEGRATION SEAMLESS.

GLUMPY PROVIDES MORE THAN 100 EXAMPLES SHOWING HOW TO ACHIEVE THIS OR THAT VISUALIZATION, SUCH AS ANTIALIASING, TEXT RENDERING, ISOLINES COMPUTATION, IMAGE FILTERING, CARTOGRAPHIC PROJECTION, REALTIME SIGNALS, FLUID SIMULATION, SVG RENDERING, ETC.

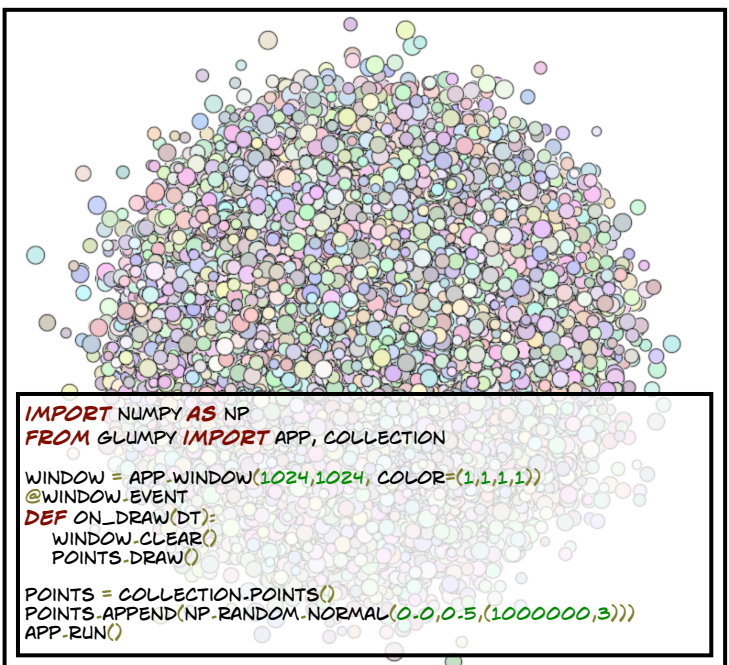


GLUMPY IS A LABORATORY FOR EXPERIMENTING IDEAS TO BE INTEGRATED INTO THE VISPY PROJECT THAT LIVES AT VISPY.ORG, BUT GLUMPY CAN ALSO BE USED AS A STANDALONE LIBRARY.

FAST & SIMPLE



SPHERICAL HARMONICS ON THE GPU



ANY KIND OF
PROJECTION CAN BE
COMPUTED DIRECTLY
ON THE GPU

CONIC EQUAL
AREA (ALBERS)

CYLINDRICAL

```
import numpy as np
from glumpy import app, collection

window = app.window(1024,1024, color=(1,1,1,1))
@window.event
def on_draw(dt):
    window.clear()
    points.draw()

points = collection.points()
points.append(np.random.normal(0,0.5,(1000000,3)))
app.run()
```