Polynomiography

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- Explore new ways to generate artistic images/image sequences from polynomials

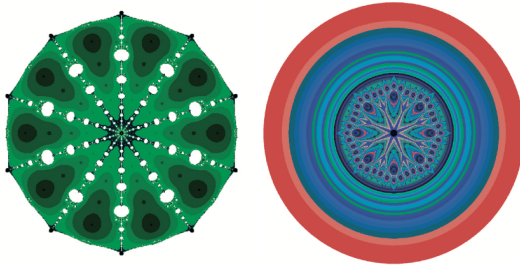- Create a python library that helps to use these methods
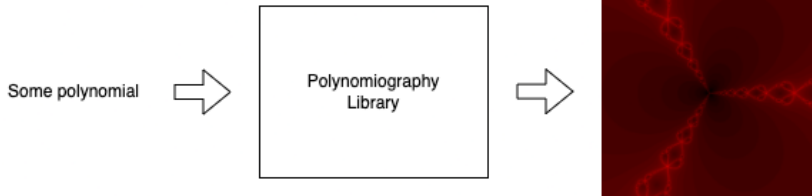

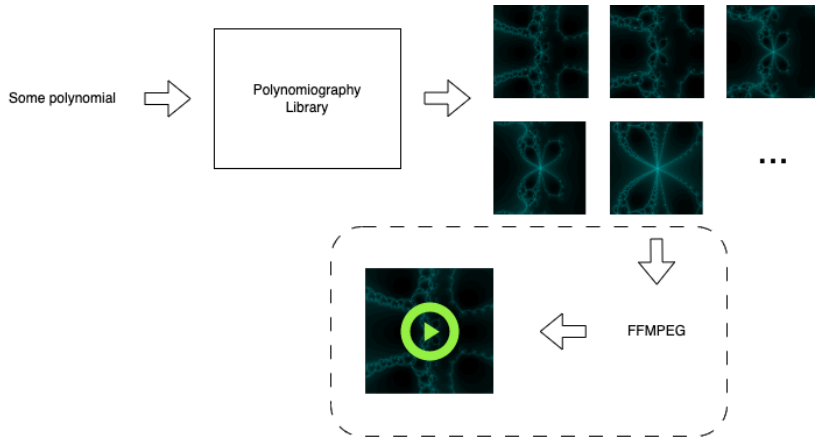Figure: Some examples from Kalantari [2008]

Figure: Use Case 1

Figure: Use Case 2

1 - Start with some x

2 - Iterate the following formula until the difference between x_n and x_{n+1} is less then some ϵ

$$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$$

3 - Return the approximated value [and iteration count]

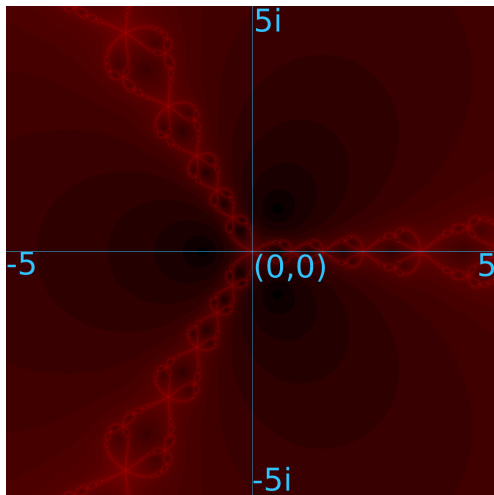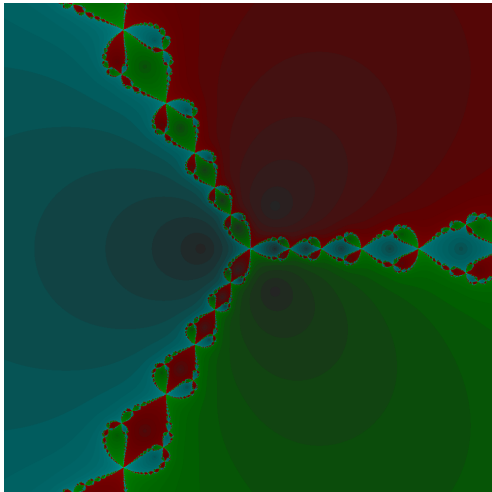Figure: Polynomiography created using newton's method for $x^3 + 1$

Figure: Polynomiography created using newton's method for $x^3 + 1$, multicolored

- A complete python library that is ready to use for end-user

- Code documentation

- Simple GUI for demonstration

Apr 05: Preliminary Presentation

Apr 05 - Apr 26: Research about previously implemented methods and root finding algorithms

Apr 27 - May 18: Implementation of the library

May 17: 2nd Meeting

May 18 - Jun 4: Implementation of GUI, updating documentation

Jun 4 - Jun 18: Preparing the final draft of the report and trailer

Jun 18: Report Trailer Submissions

Jun 21: Final Presentation

Jun 22: Demo

- At least 3 different methods that gives different result for the same polynomial

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B. Kalantari. *Polynomial Root-Finding and Polynomiography*. WORLD
SCIENTIFIC, nov 2008. doi: 10.1142/6265. URL
`https://doi.org/10.1142%2F6265`.