Google Summer of Code

Rebecca Lauren Miller

Sage Days 94

Universidad de Zaragoza

July 3rd, 2018

Outline

1. GSOC
2. Sage and GSOC
3. Student Requirements, Mentors too!
4. My Projects in 2016 and 2017
5. Questions

Google Summer of Code

- Started in 2002
- Provides funding to graduate and undergraduate students to work for open source databases
- Student driven, mentor suggested
- 2018 Stats:
  - 206 organizations
  - 62 countries
  - 1,264 students

SAGE:

- Has been accepted every year since 2015
- Steps:
- Students apply to Sage
- Sage Mentors pick applications to pass to Google ask for funding for x students
- Google offers funding for $\leq x$ students

How to apply

1. Check in February to see if SAGE was picked by GSOC for funding
2. Find mentors, at least two, and a project idea
3. Submit a proposal with a detailed steps to completing you project and timeline, and obstacles (add in extra time for problems)

Student Requirements

- ✓ Work full time, from end of May to mid-August
- ✓ Keep a blog, post at least a mid term report and final report this is also where you will post your final report.
- ✓ Can participate only two years during undergrad or graduate school (or summer after graduation)
- ✓ Must be currently enrolled to apply

Student Benefits

- Students gets swag and a certificate of completion
- Stipend
- One letter of recommendation from GSOC for a position at Google (only one letter of rec. for each year you participate.)
- Get really good at SAGE!

Mentors Benefits

- A great opportunity for your students
- Invited to visit Google
- Funding for help with you projects in SAGE

2016: Moduli Space of Dynamical Systems

https://trac.sagemath.org/ticket/20820

Implemented the invariant set algorithm from the paper *Computing conjugating sets and automorphism groups of rational functions* by Faber, Manes, and Viray

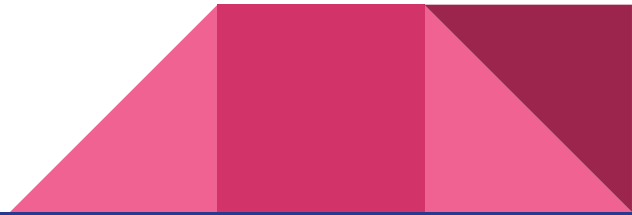
Given two non-constant rational functions of equal degree determine if there is an element of PGL that take one to the other.

2016: Moduli Space of Dynamical Systems

https://trac.sagemath.org/ticket/21248

On the Reduction Theory of Binary Forms by Stoll and Cremona

Implemented the algorithm to compute the covariant associated to a binary form, in order to reduce them.



2017: Expanding the Functionality of Dynamical Systems

https://trac.sagemath.org/ticket/23334

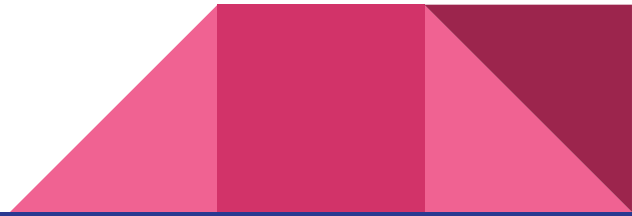
Implemented Elliot Wells' Algorithm from his paper *Computing the Canonical Height of a Point in Projective Space*. This algorithm gives us another way of measuring the canonical height of a mapping without having to factor the resultant.

2017: Expanding the Functionality of Dynamical Systems

https://trac.sagemath.org/ticket/23627

Update the points() function in projective_homset.py and affine_homset.py to work over the complex numbers (CC) and the complex double field (CDF).

This was started as GSOC 2017, and finished by Raghukul Raman as part of GSOC 2018.



Need Project Ideas

Sage Dynamics Wiki Wish list:

https://wiki.sagemath.org/dynamics/ArithmeticAndComplex

Sage GSOC Ideas Page:

https://wiki.sagemath.org/GSoC/2018

Blog

http://lifebynumber.org/life-by-blog/final-gsoc-report

Questions?

R. Lauren Miller

rebeccalaurenmiller@gmail.com

http://lifebynumber.org/