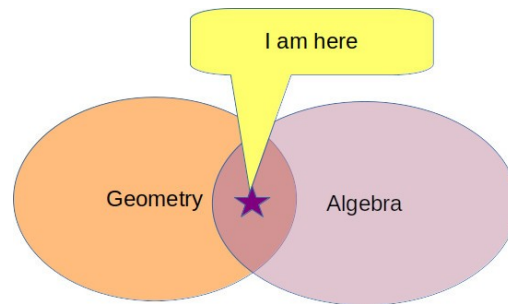


My research is in **algebraic geometry**, which is the study of geometric objects arising from algebraic structures. In my average working day, I use both geometric techniques and algebraic tools.



As a consequence I can supervise **bachelor thesis** in **algebra, geometry, algebraic geometry, combinatorics** and **category theory** (this is strictly a part of **logic** but it is fundamental to many areas of mathematics). I can supervise both in **English** and **Swedish** (also in Italian if you wish so :)).

If you are a **master student** interested in **algebraic geometry** come and talk to me! There is a number of topics that we can discuss, such as abelian varieties, toric varieties, classification of surfaces, derived categories etc.

Some example of bachelor thesis projects (also for teachers):

- Bezout Theorem for plane curves (requires abstract algebra)
- Projective geometry/ finite projective geometry (a project in just projective geometry will require only linear algebra, for finite projective geometry also Matte III: combinatorics could be an useful prerequisite)
- Differential geometry of curves and surfaces (it requires multivariate analysis)
- Insolvability of quintic equations (requires abstract algebra)
- Straight rule and compass and similar construction (requires abstract algebra).
- Linear regression (for teacher students)
- Continuous fractions and application (requires Algebra and Combinatorics)
- Elimination theory for polynomial rings (requires abstract algebra)

Past bachelor thesis projects:

- The group law on an elliptic curve
- Diofantisk equations (teacher student)
- The étale fundamental group

Past Master thesis projects:

- Theta regularity and log-canonical thresholds
- Derived equivalences between abelian varieties
- Orlov reconstruction theorem for the derived category of smooth projective varieties.

My webpage: <https://www.su.se/english/profiles/soti3346-1.395142>