A really cool project

Your name goes here

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Abstract

In this project we will do some cool things with polynomials and varieties, we might work over $\mathbb{C}$ or over $\mathbb{Q}$. We might even work in a projective space $\mathbb{P}^n$.

1 Some Gröbner bases

We might want to read about the algorithm of Faugére [2]. We can also give references names instead of numbers, we might want to read the book of Gelfand, Kapranov and Zelevinsky [GKZ] if we wanted to learn more about resultants and discriminants. You should use **either numbered or named references, not both**. I have used both here for example purposes.

2 Some Numerical Algebraic Geometry

In this section we will prove some things using results from Sommese and Wampler [5].

3 Some Code

You might also want to use Macaulay2 [M2], software should also appear in the references. You may format the bibliography items however you like (as long as its reasonable and readable).

References

[1] D. Cox, J. Little and H. Schenck: *Toric Varieties*, Graduate Studies in Mathematics, Volume 124, American Mathematical Society, Providence, RI, 2011.

[2] J-C. Faugére: *A new efficient algorithm for computing Gröbner bases (F4)*. Journal of Pure and Applied Algebra, 139(1-3):61-88, June 1999

[3] W. Fulton: *Intersection Theory*, Springer, Berlin, 2nd edition, 1998.

[GKZ] IM. Gelfand, M. Kapranov and A. Zelevinsky. *Discriminants, Resultants, and Multidimensional Determinants*, Birkhäuser, Boston, 1994.

[M2] D. Grayson and M. Stillman: *Macaulay2, a software system for research in algebraic geometry*, www.math.uiuc.edu/Macaulay2/.

[4] J. Harris: *Algebraic geometry: a first course*, volume 133. Springer, 1992.

[5] A.J. Sommese and C.W. Wampler. *The Numerical Solution of Systems of Polynomials Arising in Engineering and Science*. World Scientific, 2005.