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CURRICULUM VITAE

EDUCATION

- **Ph.D.** in Mathematics, 2000 (*Advisor:* A.V. Geramita)
  Queen's University, Kingston, Canada.
- **B.Sc. (Hons)** in Mathematics, 1996 (*Advisor:* L. Caccetta)
  Curtin University of Technology, Perth, Australia.
- **B.Sc.** in Mathematics and Computing Science, 1995
  Curtin University of Technology, Perth, Australia.

APPOINTMENTS

- Associate Professor, 7/2009-present
  Tulane University, New Orleans, Louisiana, USA
- Assistant Professor, 7/2004-6/2009
  Tulane University, New Orleans, Louisiana, USA
- Postdoctoral fellow, 9/2001-5/2004
  University of Missouri-Columbia, Missouri, USA.
- Regular member, 9/2000-8/2001
  Institute of Mathematics, Hanoi, Vietnam.

RESEARCH INTEREST

- Commutative Algebra, Computational Algebra, Combinatorics and Algebraic Geometry.

RESEARCH FUNDING AND GRANTS

- (PI) Simons Foundation Collaboration Grant (# 551654), 2013-2018, $35,000.
- (PI) National Science Foundation Conference Grant, 2012-2013, $15,750.
- (PI) National Security Agency (H98230-11-1-0165), 2010-2012, $52,719.
- (PI) Tulane Research Enhancement Fund, 2008-2009, $12,000.
- (PI) Louisiana Board of Regents Research and Development Grant (LEQSF(2007-10)-RD-A-30), 2007-2010 (extended to 2011), $61,533.
- (Co-PI) Louisiana Board of Regents Enhancement Grant (LEQSF(2005-07)-ENH-TR-79), 2005-2007 (extended to 2008), $79,872.
- Tulane Summer Research Fellowship, 2005, $4,000.
- Financial support to attend the workshop on *Combinatorial Commutative Algebra*. MSRI, Berkeley, 2012.
- Financial support to participate in the Joint Summer Research Conference - *Commutative Algebra: Presentations by young researchers*. Utah, 2003.

- Financial support to attend the workshop on *Commutative Algebra: Local and birational theory*. MSRI, Berkeley, 2002.

Awards and Honors

- Queen's Graduate Fellowship, Queen's University, 1998-2000.
- E.G. Bauman Fellowship, Queen's University, 1997.
- R. Samuel McLaughlin Fellowship, Queens University, 1996.
- First Class Honors, Curtin University of Technology, 1996.
- Member of the *Vice-Chancellor's list* - comprises the top 1% of undergraduate students at Curtin University of Technology, 1994.
- Member of the *Golden Key National Honor Society*, Curtin University of Technology chapter, 1994.
- A winning prize in the *Sydney University Mathematical Society Competition*, 1993.
- *AusAid* Scholarship - Full tuition fees and stipends, awarded to outstanding first year university students in Vietnam to carry on undergraduate study in Australia, 1993-1996.
- Silver Medal in the 32th *International Mathematical Olympiad*, 1991.
- First Prize in the *Vietnam National Mathematical Olympiad*, 1991.

Publications

- In peer reviewed journals:
    1. Amir Bagheri, Marc Chardin and Huy Tài Hà. *Eventual shape of Betti tables of powers of ideals*. Accepted in Mathematical Research Letters.
    2. Huy Tài Hà, Erik Stokes and Fabrizio Zanello. *Pure O-sequences and matroid h-vectors*. Accepted in Annals of Combinatorics.
    3. A.V. Geramita and Huy Tài Hà. *Hilbert functions of double point schemes in $\mathbb{P}^2$*. Vietnam Journal of Mathematics, 39 (2011), 327-342.
    4. Rachelle R. Bouchat, Huy Tài Hà and Augustine O'Keefe. *Path ideals of rooted trees and their graded Betti numbers*. Journal of Combinatorial Theory, Series A, 118 (2011), 2411-2425.
    5. Chris A. Francisco, Huy Tài Hà and Adam Van Tuyl. *Colorings of hypergraphs, perfect graphs, and associated primes of powers of monomial ideals*. Journal of Algebra, 331 (2011), 224-242.
    6. Huy Tài Hà. *Asymptotic linearity of regularity and a*-invariant of powers of ideals*. Mathematical Research Letters, 18 (2011), no. 1, 1-9.
    7. Chris A. Francisco, Huy Tài Hà and Adam Van Tuyl. *A conjecture on critical graphs and connections to the persistence of associated primes*. Discrete Math. 310 (2010), 2176-2182.
    8. Chris A. Francisco, Huy Tài Hà and Adam Van Tuyl. *Associated primes of monomial ideals and odd holes in graphs*. Journal of Algebraic Combinatorics, 32 (2010), no. 2, 287-301.

9. Huy Tài Hà and Susan Morey. *Embedded associated primes of powers of square-free monomial ideals.* Journal of Pure Applied Algebra, 214 (2010), no. 4, 301-308.

10. Chris A. Francisco, Huy Tài Hà and Adam Van Tuyl. *Splittings of monomial ideals.* Proc. Amer. Math. Soc. 137 (2009), 3271-3282.

11. Huy Tài Hà, Susan Morey and Rafael H. Villarreal. *Cohen-Macaulay admissible clutters.* Journal of Commutative Algebra, 1 (2009), 463-480.

12. C-Y. Jean Chan, Christine Cumming and Huy Tài Hà. *Cohen-Macaulay multigraded modules.* Illinois Journal of Math. 52 (2008), no. 4, 1147-1163.

13. Huy Tài Hà and Adam Van Tuyl. *Monomial ideals, edge ideals of hypergraphs, and their graded Betti numbers.* Journal of Algebraic Combinatorics, 27 (2008), no. 2, 215-245.

14. Chris A. Francisco and Huy Tài Hà. *Whiskers and sequentially Cohen-Macaulay graphs.* Journal of Combinatorial Theory Series A, 115 (2008), no. 2, 304-316.

15. Huy Tài Hà. *Adjoint line bundles and syzygies of projective schemes.* Vietnam Journal of Mathematics, 35 (2007), no. 2, 135-151.

16. Huy Tài Hà and Brent Strunk. *Minimal free resolutions and asymptotic behavior of multigraded regularity.* Journal of Algebra, 311 (2007), no. 2, 492-510.

17. Huy Tài Hà. *Multigraded regularity, a*-invariant and the minimal free resolution.* Journal of Algebra, 310 (2007), no. 1, 156-179.

18. Huy Tài Hà and Adam Van Tuyl. *Splittable ideals and the resolution of monomial ideals.* Journal of Algebra, 309 (2007), no. 1, 405-425.

19. Laura Ghezzi, Huy Tài Hà and Olga Kashcheyeva. *Toroidalization of generating sequences in dimension two function fields.* Journal of Algebra, 301 (2006), no. 2, 838-866.

20. Ian M. Aberbach, Laura Ghezzi and Huy Tài Hà. *Homology multipliers and the relation type of parameter ideals.* Pacific Journal of Mathematics, 226 (2006), no. 1, 1-40.

21. S. Dale Cutkosky, Huy Tài Hà, Hema Srinivasan and Emanoil Theodorescu. *Asymptotic behaviour of the length of local cohomology.* Canadian Journal of Mathematics, 57 (2005), no. 6, 1178-1192.

22. Huy Tài Hà and Ngô Viêt Trung. *Asymptotic behaviour of arithmetically Cohen-Macaulay blow-ups.* Transactions of American Mathematical Society, 357 (2005), no. 9, 3655-3672.

23. S. Dale Cutkosky and Huy Tài Hà. *Arithmetic Macaulayfication of projective schemes.* Journal of Pure and Applied Algebra, 201 (2005), no. 1-3, 49-61.

24. Ian M. Aberbach, Laura Ghezzi and Huy Tài Hà. *The depth of the associated graded ring of ideals with any reduction numbers.* Journal of Algebra, 276 (2004), 168-179.

25. Huy Tài Hà and Adam Van Tuyl. *The regularity of points in multi-projective spaces.* Journal of Pure and Applied Algebra, 187 (2004), no. 1-3, 153-167.

26. Huy Tài Hà. *Projective embeddings of projective schemes blown up at sub-schemes.* Mathematische Zeitschrift, 246 (2004), no. 1-2, 111-124.

27. Hà Huy Tài. *On the Rees algebra of certain codimension two perfect ideals.* Manuscripta Mathematica, 107 (2002), 479-501.

28. Huy Tài Hà. *Box-shaped matrices and the defining ideal of certain blown up surfaces.* Journal of Pure and Applied Algebra, 167 (2002), no. 2-3, 203-224.

29. Enrico Carlini, Huy Tài Hà and Adam Van Tuyl. *Computing the Spreading and Covering numbers.* Communications in Algebra, 29 (2001), no. 12, 5687-5699.

- Book chapters, contributions to conferences and schools:

30. Chris A. Francisco, Huy Tài Hà and Jeffrey Mermin. *Powers of squarefree monomial ideals and combinatorics.* In I. Peeva (Ed.) Commutative Algebra, 373-392. Springer, 2012.

31. Huy Tài Hà and Adam Van Tuyl. *Resolution of square-free monomial ideals via facet ideals: a survey.* Algebra, geometry and their interactions, 91-117, Contemporary Math., 448, Amer. Math. Soc., Providence, RI, 2007.

32. H. Tài Hà and Adam Van Tuyl. *The graph and the image of a rational map from $\mathbb{P}^n$ to $\mathbb{P}^m$.* The Curves Seminar at Queen's, Vol. XII, 141-162, Queen's Papers in Pure and Applied Mathematics, 114 (1998), Queen's University.

33. E. Carlini, Huy Tài Hà and A. Van Tuyl. *Tutorial 2: A Chess Puzzle.* In COCOA VI, Proceedings of the International School, Queen's Papers in Pure and Appl. Math. 120 (2001), 215-221.

34. E. Carlini, Huy Tài Hà and A. Van Tuyl. *Tutorial 3: Hilbert Function of Points.* In COCOA VI, Proceedings of the International School, Queen's Papers in Pure and Appl. Math. 120 (2001), 227-237.

35. E. Carlini, Huy Tài Hà and A. Van Tuyl. *Tutorial 5: The Ideal Generation Conjecture.* In COCOA VI, Proceedings of the International School, Queen's Papers in Pure and Appl Math. 120 (2001), 245-262.

36. E. Carlini, Huy Tài Hà and A. Van Tuyl. *Tutorial 6: The Minimal Resolution Conjecture.* In COCOA VI, Proceedings of the International School, Queen's Papers in Pure and Appl. Math. 120 (2001), 263-273.

- Thesis and Dissertation:

1. *Rational surfaces from an algebraic perspective.* **PhD Thesis**. Queen's University, Kingston, Canada, 2000.

2. *Cycles in graphs.* **Honours Dissertation**. Curtin University of Technology, Perth, Australia, 1996.

INVITED TALKS

- *Symbolic powers of monomial ideals.* American Mathematical Society sectional meeting. Riverside, November 2013.

- *Regularity of squarefree monomial ideals.* American Mathematical Society sectional meeting. Boulder, April 2013.

- *Powers of ideals in combinatorics.* Interactions between Commutative Algebra and Algebraic Geometry. Fargo, February 2013.

- *Powers of ideals in combinatorics.* Bluegrass Algebra Conference. Lexington, June 2012.
- *Stabilization of multigraded Betti numbers.* American Mathematical Society sectional meeting. Lawrence, March 2012.
- *Stabilization of multigraded Betti numbers.* American Mathematical Society sectional meeting. Lincoln, October 2011.
- *Asymptotic linearity of regularity and a^*-invariant of powers of ideals.* American Mathematical Society national meeting. New Orleans, January 2011.
- *Path ideals and their free resolutions.* American Mathematical Society sectional meeting. Lexington, March 2010.
- *Asymptotic linearity of regularity and a*-invariant of powers of an ideal.* GS^2C^2F meeting. Orlando, January 2010.
- *Regularity of powers of ideals: Revisited.* American Mathematical Society sectional meeting. Boca Raton, November 2009.
- *Associated primes of powers of square-free monomial ideals.* American Mathematical Society sectional meeting. Waco, October 2009.
- *An algebraic approach to Conforti-Cornuéjols conjecture.* Canadian Mathematical Society national meeting. Ottawa, December 2008.
- *Detecting odd holes in a graph.* Commutative Algebra and its interactions with Algebraic Geometry. Luminy, France, September 2008.
- *Algebra, combinatorics and edge ideals of hypergraphs.* GSU-USC meeting. Atlanta, April 2008.
- *Cohen-Macaulay multigraded modules.* American Mathematical Society sectional meeting. Baton Rouge, March 2008.
- *Edge ideals and odd cycles in a graph.* American Mathematical Society sectional meeting. Chicago, October 2007.
- *Resolutions of square-free monomial ideals.* American Mathematical Society national meeting. New Orleans, January 2007.
- *Whiskers and sequentially Cohen-Macaulay graphs.* Summer school in "Minimal free resolutions". Ithaca, May 2006.
- *Whiskers and sequentially Cohen-Macaulay graphs.* American Mathematical Society sectional meeting. San Francisco, April 2006.
- *Toroidalization of generating sequences in dimension two function fields.* American Mathematical Society sectional meeting. South Bend, April 2006.
- *On resolution of square-free monomial ideals.* International Conference in Commutative Algebra. Hanoi, Vietnam, January 2006.
- *Splittable ideals and the resolution of monomial ideals.* MAGIC05 Conference. South Bend, October 2005.
- *Asymptotic behaviour of arithmetically Cohen-Macaulay blow-ups.* American Mathematical Society sectional meeting. Nashville, October 2004.
- *Asymptotic behaviour of local cohomology.* American Mathematical Society sectional meeting. Tallahassee, March 2004.

- *Asymptotic behaviour of the length of local cohomology.* Route 81 conference. Syracuse, October 2003.
- *Arithmetic Cohen-Macaulayness of blow-ups.* Joint Summer Research Conference. Utah 2003.
- *Projective embeddings of blown up varieties.* American Mathematical Society sectional meeting. Orlando, November 2002.
- *Arithmetic Macaulayfication of projective schemes.* American Mathematical Society sectional meeting. Montreal, May 2002.
- *On the Rees algebra of certain codimension two perfect ideals.* American Mathematical Society national meeting. Washington DC, January 2000.
- *Box-shaped matrices and their ideals of 2×2 minors.* Canadian Mathematical Society national meeting. Montreal, December 1999.

PHD STUDENTS
- Selvi Beyarslan, 2012 - current.
- Mengyao Sun, 2011 - current.
- Augustine O'Keefe, PhD, 2012
  (Thesis : *Cohen-Macaulay toric rings arising from finite graphs*).

UNDERGRADUATE STUDENTS SUPERVISED
- Duc Ho, summer research, 2013 (funded by Tulane Honors Program).
- Xinghao Gong, summer research, 2012 (funded by Tulane Honors Program).
- Xinghao Gong, undergraduate honors thesis, 2013
  (Thesis title: *Critical graphs*).
- Robin Tucker-Drob, undergraduate honors thesis, 2008
  (Thesis title: *Cohen-Macaulay toric rings*).
- E. Didier, undergraduate senior paper, 2013 (Title: *Riemann Hypothesis*).
- L. Piazza, undergraduate senior paper, 2012 (Title: *Cubic puzzle*).
- G. Strother, undergraduate senior paper, 2010 (Title: *Chromatic number of graphs*).

POSTDOCS AND VISITING SCHOLARS
- Rebecca Lehman (PhD, MIT, 2007), Postdoctoral fellow at Tulane, 2007-2008.
- Christine Cumming (PhD, Purdue University, 2005), University of Louisiana at Monroe (Visiting-scholar at Tulane, 2005).
- Brent Strunk (PhD, Purdue University, 2005), University of Louisiana at Monroe (Postdoctoral fellow at Tulane, 2005).

UNIVERSITY AND DEPARTMENT COMMITTEES
- Graduate Studies Committee (School of Science and Engineering), 2013.
- Chair of Graduate Studies Committee (Departmental), since 2013.
- Executive Committee (Departmental), since 2013.
- Grievance Committee (School of Science and Engineering), 2011.
- Newcomb-Tulane College Honor Board (University), 2009-2012.

- Colloquium Chair (Departmental), 2009-2010.
- Hiring Committee (Departmental), 2007-2008, 2011-2012.
- Undergraduate Studies (Departmental), 2006-2012.
- Putnam Exam and Competitions (Departmental), 2006-2010.
- Computing (Department), 2004-2005.

OTHER PROFESSIONAL ACTIVITIES
- Co-organize (with Fabrizio Zanello) a special session in "Combinatorial Commutative Algebra", American Mathematical Society section meeting, Philadelphia, October 2013.
- Co-organize (with Brian Harbourne and Adam Van Tuyl) a conference entitled "Interactions between Commutative Algebra and Algebraic Geometry II", New Orleans, September 2013.
- Co-organize (with Kuei-Nuan Lin) a special session in "Commutative Algebra and Algebraic Geometry", American Mathematical Society national meeting, San Diego, January 2013.
- Organize/Participate a SQuaREs program on "Symbolic and Ordinary Powers of Ideals", American Institute of Mathematics, 2011-2014.
- Co-organize (with Brian Harbourne, Greg S. Smith and Adam Van Tuyl) an international conference entitled "Interactions between Commutative Algebra and Algebraic Geometry", Kingston, October 2012.
- Co-organize (with Chris Francisco and Adam Van Tuyl) a special session in "Combinatorial Commutative Algebra", American Mathematical Society sectional meeting, New Orleans, October 2012.
- Organize a lecture series on "From Sums of Squares To Secant Varieties: Evolution of an Idea", Tulane University, November 2009.
- Organize a lecture series on "Homological Questions over Commutative Algebras", Tulane University, April 2009.
- Organize the Clifford Lecture Series (and an international conference on *tropical geometry*), New Orleans, November 2008.
- Co-organize/attend a research team workshop, Banff, May 2008.
- Serve in the Coordination group at the 48th International Mathematical Olympiad, Vietnam, July 2007.
- Coach Tulane's Putnam Competition Team, 2006-2010.
- Co-organize (with Laura Ghezzi) a special session in "Commutative Algebra and Algebraic Geometry", American Mathematical Society sectional meeting, Miami, April 2006.
- Referee for Acta Math. Hungarica, Acta Math. Vietnamica, Algebra and Number Theory, Bulletin of LMS, Communications in Algebra, Discrete Mathematics, Journal of Algebra, Journal of Combinatorial Theory (Series A), Journal of Commutative Algebra, Journal of Pure and Applied Algebra, Math. Research Letters, Periodica Math. Hungarica, Proceedings of AMS, Proceedings of LMS, and Contemporary Mathematics.

- Review for Mathematical Reviews and Zentralblatt MATH.