

- Education**
- **Australian National University**, Ph.D. in Mathematics, 2008.
 - **University of Queensland**, B. Sc. (Honours) in Mathematics, 2003.

- Employment**
- **University of Melbourne**: Lecturer Level B, from 2015.
 - **USC, Los Angeles**: Assistant Professor, 2013-2015.
 - **UCLA**: E.R. Hedrick Assistant Professor, 2010-2013.
 - **Hausdorff Center for Mathematics, Bonn**: Postdoc, 2008-2010.

Interests Algebraic geometry, mathematical logic, theory of deep learning.

- Publications**
- J. Clift and D. Murfet, *Encodings of Turing Machines in Linear Logic*, *Mathematical Structures in Computer Science*, 30 (2020), 379-415.
 - J. Clift and D. Murfet, *Cofree coalgebras and differential linear logic*, *Mathematical Structures in Computer Science*, 30 (2020), 416-457.
 - J. Clift, D. Doryn, D. Murfet and J. Wallbridge, *Logic and the 2-simplicial Transformer*, *International Conference on Learning Representations 2020*.
 - D. Murfet, *The cut operation on matrix factorisations*, *J. Pure and Applied Algebra*, 222 (2018), 1911-1955.
 - N. Carqueville and D. Murfet, *Adjunctions and defects in Landau-Ginzburg models*, *Adv. Math.* 289 (2016), 480-566.
 - D. Murfet, *On Sweedler's cofree cocommutative coalgebra*, *J. Pure and Applied Algebra*, 219 (2015) 5289-5304.
 - N. Carqueville and D. Murfet, *Computing Khovanov-Rozansky link homology and defect fusion*, *Algebraic & Geometric Topology* 14 (2014), 489-537.
 - T. Dyckerhoff and D. Murfet, *Pushing forward matrix factorisations*, *Duke Math. J.* Volume 162, Number 7 (2013), 1249-1311.
 - D. Murfet, *Residues and duality for singularity categories of isolated Gorenstein singularities*, *Compositio Mathematica*, 149 (2013) 2071-2100.
 - N. Carqueville and D. Murfet, *A toolkit for defect computations in Landau-Ginzburg models*, *String-Math 2012 proceedings*.
 - T. Dyckerhoff and D. Murfet, *The Kapustin-Li formula revisited*, *Adv. Math.* 231 (2012), 1858-1885.
 - D. Murfet and S. Salarian: *Total acyclicity for complexes over a Noetherian scheme*, *Adv. Math.* 226 (2011), 1096-1133.
 - D. Murfet, *Rouquier's cocovering theorem and well-generated triangulated categories*, *Journal of K-Theory* 01 (2011) 31-57.
 - B. Keller, D. Murfet and M. Van den Bergh, *On two examples by Iyama and Yoshino*, *Compositio Mathematica*, 147 (2010) 591-612.

- Preprints**
- D. Murfet, *Constructing A_∞ -categories of matrix factorisations*, arXiv: 1903.07211 (66 pages).
 - J. Clift and D. Murfet, *Derivatives of Turing Machines in Linear Logic*, arXiv: 1805.11813, submitted (62 pages).

- Lecture series**
- **September 2017**, at the workshop “String Field Theory of Landau-Ginzburg models”, Institute for Basic Science, Korea.
 - **September 2016**, “Matrix factorizations and related topics” at the IPMU in Tokyo, September 2016.
 - **January 2016**, At the workshop “String Field Theory of the B-Model” at the Institute for Basic Science, Korea.
 - **May 2012**, At the workshop “Commutative Algebra and Its Interactions with Algebraic Geometry, Representation Theory, and Physics” at the Pan-American Advanced Studies Institute, Mexico.

- Conference talks**
(since 2013)
- **January 2020**, Seoul, KIAS workshop “Atiyah classes and related topics”.
 - **July 2019**, Toronto, memorial conference for Ragnar Buchweitz.
 - **July 2019**, Melbourne, workshop on monoidal categories.
 - **June 2019**, Newcastle, CARMA workshop on computer-aided proof.
 - **November 2018**, Beijing, joint Peking University and University of Melbourne workshop.
 - **November 2018**, Beijing, joint Peking University and University of Melbourne workshop.
 - **September 2017**, Bielefeld, Neeman’s 60th birthday conference.
 - **June 2017**, Melbourne, “Tensor categories and field theory”.
 - **May 2017**, Melbourne, “Topology in Australia and South Korea”.
 - **August 2016**, Canberra, “Geometry at the ANU”.
 - **June 2016**, Banff, “Triangulated categories and applications”.
 - **June 2016**, Melbourne, AAL annual conference.
 - **December 2015**, Melbourne logic workshop.
 - **September 2014**, San Francisco, speaker in the AMS special session “Categorical Methods in Representation Theory”.
 - **September 2013**, Oberwolfach, speaker in the workshop “Matrix Factorizations in Algebra, Geometry, and Physics”.
 - **April 2013**, MSRI, “Interactions between Noncommutative Algebra, Representation Theory, and Algebraic Geometry”.
 - **February 2013**, MSRI, “Representation theory, homological algebra, and free resolutions”.

- Colloquia**
- **November 2019**, Macquarie University, “The mathematics of AlphaGo”.
 - **October 2015**, Vienna, “Two odd things about computation”.
 - **August 2012**, Purdue, “Hypersurface singularities in mathematics and physics”.
 - **October 2009**, University of Lincoln-Nebraska, “Duality in singularity categories and string theory”.

- Events organised**
- With Henning Krause and Greg Stevenson, the 60th birthday conference for Neeman in May 2017.
 - With Nils Carqueville and Ingo Runkel the workshop on “Higher Topological Quantum Field Theory and Categorical quantum mechanics” at the Erwin-Schrödinger Institute in Vienna in October 2015.
 - Together with Srikanth Iyengar and Ragnar Buchweitz I organised a month long focus period on matrix factorizations at the MSRI, as part of the MSRI program on Commutative Algebra from August 2012 - May 2013.

- Awards**
- **2003** - Ethel Raybould prize in Mathematics, University medal (University of Queensland).
 - **2001** - Michael P O'Donnell Memorial prize, Maude Walker prize (University of Queensland).

Journals refereed Advances in Mathematics, Journal of Algebra, Journal of Pure and Applied Algebra, Documenta Mathematica, Communications in Algebra, Duke Mathematical Journal, Algebra & Number Theory.

Personal

Office Address:	Mathematics Department University of Melbourne Victoria 3010 Australia
Email:	d.murfet@unimelb.edu.au
Web:	http://www.therisingsea.org
Date of Birth:	1982 (Queensland, Australia)
Citizenship:	Australia