

Biographical Sketch– Alexander Yong

Professional Preparation:

- Univ. of Waterloo, B.Math., 1994–1998
- Univ. of Waterloo, M.Math., 1998–1999
- Univ. of Michigan, Ph.D. in math, 1999–2003
- Univ. of California, Berkeley, Visiting Asst. Prof., 2003–2005
- Fields Institute, Univ. of Toronto, NSERC postdoc, 2005–2007.
- Univ. of Minnesota, Dunham Jackson Asst. Prof., 2005–2008

Appointments:

- Professor, U. Illinois at Urbana-Champaign, 2016–Present
- Associate Professor, U. Illinois at Urbana-Champaign, 2012–2016
- Assistant Professor, U. Illinois at Urbana-Champaign, 2008–2012

Five products most closely related to project:

1. A. Adve, C. Robichaux and A. Yong, “Complexity, combinatorial positivity and Newton polytopes”, submitted, 2018.
2. C. Monical, N. Tokcan and A. Yong, “Newton Polytopes in Algebraic Combinatorics”, submitted, 2017.
3. A. Adve, C. Robichaux and A. Yong, “Vanishing of Littlewood-Richardson polynomials is in P”, *Comput. Complexity* 28 (2019), no. 2, 241–257.
4. A. Woo and A. Yong, “Tropicalization, symmetric polynomials, and complexity”, *J. Symbolic Computation*, to appear, 2019.
5. O. Pechenik and A. Yong, “Equivariant K-theory of Grassmannians”, *Forum of Mathematics Pi* (2017), Vol. 5, e3, 128pp.

Five other significant products:

1. H. Thomas and A. Yong, “Equivariant Schubert calculus and jeu de taquin”, *Ann. Inst. Fourier (Grenoble)* 68 (2018), no. 1, 275–318.
2. O. Pechenik and A. Yong, “Equivariant K-theory of Grassmannians II: The Knutson-Vakil conjecture”, *Compositio* 153(2017) 667–677.
3. B. Wyser, A. Woo and A. Yong, “Governing singularities of symmetric orbit closures”, *Alg. Number Th.*, 12 (2018) 173–225.
4. V. Reiner, B. Tenner and A. Yong, “Poset edge densities, nearly reduced words, and barely set-valued tableaux”, *J. Combin. Theory Ser. A*, 158 (2018), 66–125.
5. R. Rimanyi, A. Weigandt and A. Yong, *Partition Identities and Quiver Representations*, *J. Algebraic Combin.*, 47 (2018), no. 1, 129–169.

Awards

- 2018 Distinguished Teaching Award for Tenured Faculty
- 2018 Arnold O. Beckman Award
- 2012 Helen Corley Petit Scholar
- 2011 G. de B. Robinson Award of the Canadian Math Society
- 2011 Center for Advanced Study Beckman Fellow

Synergistic Activities

- *Undergraduate and interdisciplinary outreach*: Founder and director of ICLUE (Illinois Combinatorics Lab for Undergraduate Experiences). Outcomes include multiple research papers, a Goldwater scholar, and doctoral placements. Wrote general audience/pedagogical articles on combinatorics and comparative linguistics), combinatorics and the h -index, and estimation of game complexity (with David Yong).
- *Training of Underrepresented groups*: Primary mentor to: REUs Colleen Ross, Anna Chlopecki, Amy Feng, Jackie Oh; M.S Student Aisha Arroyo, Ph.D students Cara Monical, Anna Weigandt, Colleen Robichaux; postdoctoral faculty Elizabeth Csimas and Laura Escobar
- *High school outreach*: Teaches week-long enrichment class at local high school. Reviewed Illinois Math and Science Academy's (IMSA) mathematics program. Wrote two papers with a high school student (Anshul Adve). Currently mentor to IMSA high school student (Ray Shang). Regularly a judge for ICTM state high school math finals, taught at UIUC's TRiO Upward Bound College Prep Academy for minority students.
- *Conference organization*: "Combinatorics and beyond: the many facets of Sergey Fomin's mathematics (2018), "2020 IMPANGA conference: Schubert varieties" (scientific committee), AMS/Canadian Math Society special sessions (multiple), two week-long workshops (Fields Institute), Bay area discrete math day, ALGECOM midwest regional conference series
- *Editorial*: Annals of Combinatorics (editorial board, starting September 2019), FPSAC conference scientific committee (multiple)

Doctoral student mentoring

- Shiliang Gao (1st year student)
- Gidon Orelowitz (2nd year student)
- Colleen Robichaux (4th year student), NSF graduate fellow
- Cara Monical (PhD 2018), Senior Computer Scientist at Sandia National Labs.
- Anna Weigandt (PhD 2018), postdoc at the University of Michigan, Ann Arbor.
- Oliver Pechenik (PhD 2016), NSF postdoctoral fellow at the University of Michigan, Ann Arbor.
- Dominic Searles (PhD 2015), Postdoctoral Assistant Professor at University of Southern California; Lecturer (=tenure track assistant professor) at University of Otago, New Zealand.