

Raj Gandhi

Curriculum vitae

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Canada

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📄 [rajgandhi97.github.io](https://github.com/rajgandhi97)

Research interests

Algebraic geometry, differential geometry, Lie theory.

Education

- Sep. 2021 - **Ph.D. in Mathematics**, *Cornell University*.
Thesis title: *TBA*.
- Sep. 2019 - **M.Sc. in Mathematics**, *University of Ottawa*.
Aug. 2021 Thesis title: *Oriented cohomology rings of the semisimple linear algebraic groups of ranks 1 and 2*. ruor.uottawa.ca/handle/10393/42566?mode=full.
Supervisors: Alistair Savage and Kirill Zainoulline.
- 2015–2019 **B.Sc. in Physics-Mathematics**, *University of Ottawa*.
Summa cum laude.

Awards/Scholarships

Awards

- 2015–2019 **Dean's honour list**, *University of Ottawa*.
- 2018 **Student paper award**,
Department of mathematics and statistics, University of Ottawa.
(Awarded for paper titled *Decomposing Frobenius Heisenberg categories*.)

External scholarships

- 2021 **Canada Graduate Scholarship - Doctoral, NSERC**.
(Awarded for Sep. 2021 - Aug. 2024 session.) - Declined
- 2021 **Postgraduate Scholarship - Doctoral, NSERC**.
(Awarded for Sep. 2021 - Aug. 2024 session.) - Accepted
- 2020 **Ontario graduate scholarship, Ontario government**.
(Awarded for Sep. 2020 - Aug. 2021 session.) - Accepted
- 2019 **Canada graduate scholarship - M.Sc., NSERC**.
(Awarded for Sep. 2019 - Aug. 2020 session.) - Accepted
- 2019 **Ontario graduate scholarship, Ontario government**.
(Awarded for Sep. 2019 - Aug. 2020 session.) - Declined
- 2019 **Undergraduate student research award, NSERC**.
- 2018 **Undergraduate student research award, NSERC**.
- 2017 **Undergraduate student research award, NSERC**.

Internal scholarships

- 2020 **Excellence scholarship - M.Sc.**, *University of Ottawa*.
(Awarded for Sep. 2020 - Aug. 2021 session.)
- 2019 **Excellence scholarship - M.Sc.**, *University of Ottawa*.
(Awarded for Sep. 2019 - Aug. 2020 session.)
- 2016 **Undergraduate research opportunity program**, *University of Ottawa*.
- 2015 **Admission scholarship - B.Sc.**, *University of Ottawa*.

Experience

Undergraduate research experience

- May–Aug. **Undergraduate student researcher**, *Carleton University*, Ottawa.
- 2019 Project title: *Rigid realizations of modular forms in Calabi-Yau threefolds*.
Supervisors: Colin Ingalls and Adam Logan.
- May–Aug. **Undergraduate student researcher**, *University of Ottawa*.
- 2018 Project title: *Decomposing Frobenius Heisenberg categories*.
Supervisor: Alistair Savage.
- May–Aug. **Undergraduate student researcher**, *University of Ottawa*.
- 2017 Project title: *The formal affine Demazure algebra and real finite reflection groups*.
Supervisor: Kirill Zainoulline.

Teaching experience

- 2019–2021 **Teaching assistant**, *University of Ottawa*.
- MAT 1320X: Calculus I. Tutorial instructor. (Summer 2021).
 - MAT 2355: Introduction to Geometry. Grader. (Winter 2021).
 - MAT 1348: Discrete Mathematics for Computing. Grader and tutorial instructor. (Winter 2021).
 - MAT 2141: Honours Linear Algebra. Grader. (Fall 2020).
 - MAT 1341: Introduction to Linear Algebra. Grader and tutorial instructor. (Fall 2020).
 - MAT 1332: Calculus II for the Life Sciences. Grader and tutorial instructor. (Fall 2020).
 - MAT 1300X: Mathematical Methods I. Tutorial instructor. (Summer 2020).
 - MAT 1320: Calculus I. Grader and tutorial instructor. (Winter 2020).
 - MAT 1348: Discrete Mathematics for Computing. Grader and tutorial instructor. (Winter 2020).
 - MAT 1362: Mathematical Reasoning and Proofs. Grader. (Winter 2020).
 - MAT 1362: Mathematical Reasoning and Proofs. Grader and tutorial instructor. (Fall 2019).

Invited Talks

- June 3, 2021 **Algebra and Geometry of Homogeneous Spaces**, *The formal group ring and real finite reflection groups*, University of Ottawa.

Programming

See <https://github.com/RajGandhi97> for some of the code that I have written and the slides for the talks I have given.

Presentations

March 24, **UROP Symposium**, *The ring of twisted differential operators of reflection group*
2016 $I_2(5)$, University of Ottawa.
ruor.uottawa.ca/handle/10393/36283.

Papers

Published/Accepted

1. Decomposing Frobenius Heisenberg categories, *Journal of Algebra and its Applications*. (2020). Vol. 19. No. 5. 31 pages. arxiv.org/abs/1905.07463.
doi.org/10.1142/S0219498820500942.

Preprints

2. The formal affine Demazure algebra and real finite reflection groups. arxiv.org/abs/1905.07463.
3. Diagrammatics for F_4 . (Joint with Alistair Savage and Kirill Zainoulline.) arxiv.org/abs/2107.12464.