

Lena Collienue

Curriculum Vitae

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Research

Postdoctoral Research, *Fred Hutch Cancer Center*.

Developing novel methods for phylogenetic inference using machine learning.

Postdoctoral Research, *University of Canterbury*.

Extending subtree prune and regraft operations to ranked phylogenetic trees and investigating thereby introduced distance measures for phylogenetic time trees.

PhD Research, *University of Otago*.

Introducing and analysing spaces of phylogenetic time trees based on nearest neighbour interchange tree rearrangements.

M.Sc. Research, *University of Greifswald*.

Establishing properties of ranked nearest neighbour interchange moves between ranked phylogenetic trees

Education

2018–2021 **Doctor of Philosophy**, *Computer Science*, University of Otago (NZ).

2016–2018 **Master of Science**, *Biomathematics*, University of Greifswald (GER).

2012–2015 **Bachelor of Science**, *Biomathematics*, University of Greifswald (GER).

Work Experience

2023–now **Postdoctoral Research Fellow**, *Matsen group*, Fred Hutch Cancer Center (US).

2022–2023 **Postdoctoral Research Fellow**, *BioDS lab, School of Mathematics and Statistics*, University of Canterbury (NZ).

2022 **Lecturer**, *STAT211: Random Processes*, University of Canterbury (NZ).

2019 **Tutor**, *COSC341: Theory of Computing*, University of Otago (NZ).

2015–2016 **Summer Research Project**, *University of Auckland* (NZ).

Scholarships and Awards

2022 *Hatherton Award* (Royal Society of New Zealand)

2021 *Exceptional PhD thesis* (Division of Science, University of Otago)

2018–2021 *University of Otago Doctoral Scholarship*

2018 *Externally Funded Research Grant* (Max Planck Institute Plön)

2015 *Summer Research Scholarship* (University of Auckland)

- 2015 *PROMOS Travel Scholarship* (University of Greifswald)
- 2014–2015 *Deutschlandstipendium* (Alfried Krupp von Bohlen und Halbach Foundation/Federal Government of Germany)

Additional Activities

- 2021 President of the Otago Computer Science Society (University of Otago)
- 2019–2021 Member of the Postgraduate Committee (Department of Computer Science, University of Otago)
- 2019–2021 Organising the annual Postgraduate Symposium (Department of Computer Science, University of Otago)
- 2019–2021 Member of Student Council (Institute for Mathematics and Computer Science, University of Greifswald)

Talks

Conference Talks

- 2024 **Evolution 2023**, *Montreal (CA)*.
Contributed talk: Instability in Phylogenetic Trees after Taxon Addition
- 2023 **SMB meeting 2023**, *Columbus (OH, US)*.
Invited minisymposium talk: Spaces of Discrete Time Trees
- 2022 **Phylomania 2022**, *Hobart (AU)*.
Contributed talk: Subtree Prune and Regraft on Ranked Trees
- 2021 **Phylomania 2021** (Best Student Talk Award), *Online*.
Contributed talk: Distances between Phylogenetic Time Trees
- 2021 **NZ Phylogenomics Meeting**, *Akaroa (NZ)*.
Contributed talk: The Space of Discrete Coalescent Trees
- 2020 **NZ Phylogenomics Meeting**, *Waiheke (NZ)*.
Contributed talk: Online Algorithms in Computational Biology
- 2019 **NZ Phylogenomics Meeting**, *Napier (NZ)*.
Contributed talk: The Ranked Nearest Neighbour Interchange Space of Phylogenetic Trees

Invited Seminar Talks

- 2021 **Department of Mathematics**, *University of Otago (NZ)*.
The Space of Discrete Coalescent Trees
- 2020 **Online Seminars on Algorithms and Complexity in Phylogenetics**, *Online*.
Computing the Ranked Nearest Neighbour Interchange Distance between Ranked Phylogenetic Trees
- 2019 **Max Planck Institute for Mathematics in the Science**, *Leipzig (GER)*.
The Ranked Nearest Neighbour Interchange space of phylogenetic trees
- 2017 **Computational Evolution Group**, *ETH Zurich (CH)*.
Discrete Time Trees

Other

- 2022 **School of Mathematics and Statistics, University of Canterbury (NZ).**
How to Give a (Good) Talk
- 2020 **Postgraduate Symposium** (1st place Best Presentation Award), *University of Otago (NZ)*.
The Complexity of Computing the RNNI Distance between Phylogenetic Trees
- 2020 **Seminar of Departments of Computer Science and Information Science, University of Otago (NZ).**
The Complexity of Computing Nearest Neighbour Interchange Distances between Ranked Phylogenetic Trees
- 2019 **Postgraduate Symposium** (2nd place Best Presentation Award), *University of Otago (NZ)*.
Online Algorithms in Computational Biology

Publications

Collienne, L., Barker, M., Suchard, MA., & Matsen IV, FA. (2024). Phylogenetic tree instability after taxon addition: empirical frequency, predictability, and consequences for online inference. *Systematic Biology* syae059. <https://doi.org/10.1093/sysbio/syae059>

Collienne, L., Whidden, C. & Gavryushkin, A. (2024). Ranked Subtree Prune and Regraft. *Bulleting of Mathematical Biology* 86, 24. <https://doi.org/10.1007/s11538-023-01244-2>

Berling, L., **Collienne, L.** & Gavryushkin, A. (2024). Estimating the mean in the space of ranked phylogenetic trees. *Bioinformatics, Volume 40, Issue 8*. <https://doi.org/10.1093/bioinformatics/btae514>.

Bouckaert, R., **Collienne, L.** & Gavryushkin, A. (2022). Online Bayesian Analysis with BEAST2. *BioRxiv*.

Collienne, L. (2021). Spaces of phylogenetic time trees (Thesis, Doctor of Philosophy). University of Otago. Retrieved from <http://hdl.handle.net/10523/12606>

Collienne, L., Elmes, K., Fischer, M., Bryant, D. & Gavryushkin, A. (2021). Discrete Coalescent Trees. *Journal of Mathematical Biology* 83.5, p. 60. issn: 1432-1416.

Collienne, L. & Gavryushkin, A. (2021). Computing nearest neighbour interchange distances between ranked phylogenetic trees. *Journal of Mathematical Biology* 82.1, p. 8. issn: 1432-1416.