

Lena Collienue

Curriculum Vitae



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<https://github.com/lenacoll>

RESEARCH

Postdoctoral Research

“Statistical Methods for Phylogenetic Time Trees”

Analysing distributions of trees in tree spaces of phylogenetic time trees and developing statistical methods for analysing those.

PhD Research

“Spaces of Phylogenetic Time Trees”

Introducing a new tree rearrangement based space of phylogenetic time trees (evolutionary histories), focusing on discrete time trees. This includes establishing an algorithm for computing shortest paths between trees in the resulting tree space and analysing its properties.

M.Sc. Research

“The ranked Nearest Neighbour Interchange space of phylogenetic trees”

Establishing a tree space of ranked phylogenetic trees and investigating its properties.

WORK EXPERIENCE

University of Otago

Postdoctoral Research Fellow

BioDS lab (University of Canterbury)

2022 (FT)

EDUCATION

2018 - 2021 **Doctor of Philosophy**
Computer Science
University of Otago (New Zealand)

2016 - 2018 **Master of Science**
Biomathematics
University of Greifswald (Germany)

2012 - 2015 **Bachelor of Science**
Biomathematics
University of Greifswald (Germany)

SKILLS

BEGINNER Java, C++, Perl

INTERMEDIATE C, R

EXPERT Python, L^AT_EX

TEACHING

SEMESTER I 2019 (PT)

University of Otago

COSC341 Tutor

Tutor and guest lecturer for COSC341: Theory of Computing

SEMESTER I 2022 (PT)

University of Canterbury

STAT211 lecturer

Lecturer for STAT211: Random Processes

AWARDS AND SCHOLARSHIPS

2021 **Exceptional PhD thesis**
University of Otago

2018-2021 **University of Otago Doctoral Scholarship**
University of Otago

2018 **Externally Funded Research Grant**
funded by Max Planck Institute Plön

2015 **Summer Research Scholarship**
University of Auckland

2015 **PROMOS Scholarship**
University of Greifswald

2014-2015 **Deutschlandstipendium**
funded by Alfried Krupp von Bohlen und Halbach Foundation and Federal Government of Germany

ADDITIONAL ACTIVITIES

2021 President of the Otago Computer Science Society, University of Otago

2019-2021 Member of the Postgraduate Committee in the Department of Computer Science, University of Otago

2019-2021 Organising the annual Postgraduate Student Symposium of the Departments of Computer Science and Information Science, University of Otago

2014-2017 Member of the student council, Institute of Mathematics and Computer Science, University of Greifswald

PUBLICATIONS

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.

Collienne, L., Elmes, K., Fischer, M., Bryant, D., & Gavryushkin, A. (2019). Geometry of Ranked Nearest Neighbour Interchange Space of Phylogenetic Trees. *BioRxiv*.

TALKS

CONFERENCE “Distances between phylogenetic time trees”
Phylomania 2021

CONFERENCE “The space of discrete coalescent trees”
New Zealand Phylogenomics Meeting 2021

“The complexity of computing the RNNI distance between phylogenetic trees”
Postgraduate Symposium, Department of Computer Science, University of Otago, August 2020

“Online Algorithms in Computational Biology”
New Zealand Phylogenomics Meeting 2020

“Online Algorithms in Computational Biology”
Postgraduate Symposium, Department of Computer Science, University of Otago, October 2019

“The Ranked Nearest Neighbour Interchange space of phylogenetic trees”
New Zealand Phylogenomics Meeting 2019

SEMINAR “The Space of Discrete Coalescent Trees”
Department of Computer Science, University of Otago, March 2021

“Computing the Ranked Nearest Neighbour Interchange distance between ranked phylogenetic trees”
Online Seminars on Algorithms and Complexity in Phylogenetics September 2020

“The complexity of computing nearest neighbour interchange distances between ranked phylogenetic trees”
Department of Computer Science, University of Otago, May 2020

“The Ranked Nearest Neighbour Interchange space of phylogenetic trees”
Max Planck Institute for Mathematics in the Science, July 2019

“Discrete time-trees”
Computational Evolution Group, ETH Zurich, August 2017