

Rajiv Boscolo Agostini, Ph.D. student

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🐦 @Raj94_

🌐 Rajiv Boscolo Agostini

🌐 <https://raj94b.github.io/>

Research experience




- 11/2024 – ongoing 📌 **Research Fellow.** Life Sciences and Biotechnology Department, Population Genomics Research Group, University of Ferrara.
Statistical and bioinformatic analyses on ancient human genomic and metagenomic variability to reconstruct the Neolithic transition process in the Mediterranean basin.
- 12/2020 – 01/2021 📌 **Collaborator.** Life Sciences and Biotechnology Department, Population Genomics Research Group University of Ferrara.
Application of machine learning algorithms on the analysis of genomic data of ancient and modern human populations.
- 04/2020 – 07/2020 📌 **Research Fellow.** Life Sciences and Biotechnology Department, Population Genomics Research Group, University of Ferrara.
*Hybrid genome assembly analyses of Tortoise (*Testudo hermanni*) data.*
- 12/2019 – 10/2021 📌 **Attending Graduate.** Life Sciences and Biotechnology Department, Population Genomics Research Group, University of Ferrara.
*Genome assembly of the Appenine Brown Bear (*Ursus arctos mariscanus*) using long reads.*

Education

- 2021 – ongoing 📌 **Ph.D., Evolutionary Biology and Ecology**, University of Florence.
Thesis title: *The evolutionary history of Italy from the Mesolithic to the present: lessons from ancient genomes*
- 2017 – 2019 📌 **M.Sc. Biomolecular and Evolutionary Sciences**, University of Ferrara
Thesis title: *Worldwide Helicobacter pylori genetic variation is informative about the evolutionary history of anatomically modern humans.*
Final mark: 110 cum laude
- 2014 – 2017 📌 **B.Sc. Biological Sciences**, University of Ferrara
Thesis title: *Worldwide genetic variability of Helicobacter pylori and identification of European groups.*

Publications in peer-reviewed journals and preprints

- 1 **R. Boscolo Agostini**, M. T. Vizzari, A. Benazzo, and S. Ghirotto, “Disentangling the worldwide invasion process of *Halyomorpha halys* through Approximate Bayesian Computation,” *Heredity*, 2024.
🔗 DOI: 10.1038/s41437-024-00735-9.
- 2 F. F. Vale, **HpGP Research Network**, R. J. Roberts, I. Kobayashi, M. C. Camargo, and C. S. Rabkin, “Gene content, phage cycle regulation model and prophage inactivation disclosed by prophage genomics in the helicobacter pylori genome project,” *Gut Microbes*, 2024. 🔗 DOI: 10.1080/19490976.2024.2379440.
- 3 M. T. Vizzari, S. Ghirotto, **R. Boscolo Agostini**, P. Maisano Delser, L. Cassidy, A. Manica, and A. Benazzo, “Low-ABC: A robust demographic inference from low-coverage whole-genome data through abc,” *BiorXiv*, 2024. 🔗 DOI: 0.1101/2024.08.01.606209.

- 4 K. Thorell, Z. Y. Muñoz-Ramírez, D. Wang, S. Sandoval-Motta, **R. Boscolo Agostini**, S. Ghirotto, R. C. Torres, D. Falush, M. C. Camargo, and C. S. Rabkin, "The *Helicobacter pylori* genome project: Insights into *H. pylori* population structure from analysis of a worldwide collection of complete genomes," *Nature Communications*, 2023.  DOI: 10.1038/s41467-023-43562-y.
- 5 A. Modi*, M. T. Vizzari*, G. Catalano, **R. Boscolo Agostini**, S. Vai, M. Lari, C. Vergata, V. Z. Zaro, L. Liccioli, M. Fedi, S. Barone, L. Nigro, H. Lancioni, A. Achilli, L. Sineo, D. Caramelli, and S. Ghirotto, "Genetic structure and differentiation from early bronze age in the mediterranean island of Sicily: Insights from ancient mitochondrial genomes," *Frontiers in Genetics*, 2022.  DOI: 10.3389/fgene.2022.945227.
- 6 S. Sarno*, **R. Boscolo Agostini***, S. De Fanti, G. Ferri, S. Ghirotto, G. Modenini, D. Pettener, and A. Boattini, "Y-chromosome variability and genetic history of commons from Northern Italy," *American Journal of Physical Anthropology*, 2021.  DOI: 10.1002/ajpa.24302.

Contributions to conferences and meetings

Seminars

- 1 **R. Boscolo Agostini**, *La ricostruzione delle dinamiche popolazionistiche attraverso il DNA antico*. Department of Historical Sciences and Cultural Heritage, University of Siena, 30/05/2024.
- 2 **R. Boscolo Agostini**, S. Vai, M. T. Vizzari, S. Perretti, F. De Pizzol, A. Mittnik, D. Luiselli, O. Rickards, L. Sineo, N. Volante, D. Reich, S. Ghirotto, and D. Caramelli, *The evolutionary history of Italy from Mesolithic to the Middle Ages: Lessons from ancient genomes*, SIBE Congress 2024, University of Naples "Parthenope", 11/09/2024.
- 3 S. Vai, **R. Boscolo Agostini**, A. Mittnik, D. Luiselli, O. Rickards, L. Sineo, N. Volante, D. Reich, S. Ghirotto, and D. Caramelli, *1000 Ancient Italian Genomes: Evidence from ancient biomolecules for unravelling past human population Dynamics*, EAA Congress 2024, tandem presentation, University of Rome La Sapienza, 29/08/2024.

Poster presentations

- 1 **R. Boscolo Agostini**, S. Vai, M. T. Vizzari, S. Perretti, F. De Pizzol, A. Mittnik, D. Luiselli, O. Rickards, L. Sineo, N. Volante, D. Reich, S. Ghirotto, and D. Caramelli, *The evolutionary history of Italy from Mesolithic to the Middle Ages: Lessons from ancient genomes*, EMBO | EMBL Symposium, Heidelberg, 09/2024.
- 2 **R. Boscolo Agostini**, M. T. Vizzari, A. Benazzo, and S. Ghirotto, *Disentangling the worldwide invasion process of halyomorpha halys through ABC*, SMBE, Ferrara 2023.
- 3 **R. Boscolo Agostini**, M. T. Vizzari, A. Benazzo, and S. Ghirotto, *Disentangling the worldwide invasion process of halyomorpha halys through ABC*, Joint Meeting AGI SIMAG 2023, Cortona 2023.
- 4 **R. Boscolo Agostini**, M. T. Vizzari, A. Benazzo, and S. Ghirotto, *Reconstructing the global invasion routes of Halyomorpha halys through Approximate Bayesian Computation*, SIBE Congress, Ancona 2022 and FISV, Napoli 2022.
- 5 Y. Moodley, S. Ghirotto, A. Brunelli, **R. Boscolo Agostini**, N. De Serio, V. Chelysheva, A. Klyubin, A. Maady, K. Mominyalev, B. Linz, and M. Achtman, *The genetic history of modern humans in Siberia: A bacterial perspective*, SIBE Congress, Padova 2019.






Outreach

Talks



- 6/11/2023  **L'Ominazione: il giro del mondo in sei milioni di anni.** Talk presented in the outreach event "SCIENZE. PANORAMI SCIENTIFICI L'UOMO" hosted by Arci Rovigo

Teaching and tutoring

Academic tutor





- 01/2024 – 09/2024  **Genetics.** Tutoring for the Genetics course in the Biotechnology B.Sc program, University of Ferrara. (55 hours)
- 02/2023 – 09/2023  **Genetics.** Tutoring for the Genetics course in the Biotechnology B.Sc program, University of Ferrara. (55 hours)
- 02/2022 – 02/2023  **Genetics.** Tutoring for the Genetics course in the Biotechnology B.Sc program, University of Ferrara. (55 hours)
- 02/2019 – 07/2019  **Genetics.** Genetics course in the Biological Sciences B.Sc. program, University of Ferrara. (55 hours)
- 11/2018 – 07/2019  **Biostatistics.** Tutoring for the Biostatistics course in the Biological Sciences B.Sc. program, University of Ferrara. (68 hours)

Final thesis tutoring




- 2021 – 2023  **Master thesis.** Students: Giulia Battaglia.
- 2021 – 2022  **Bachelor thesis.** Students: Camilla Giacometti, Silvia Fiori, Brigida Pantaleo.

Workshops and courses

Workshops

- 6/06/2023 – 9/06/2023  **Phylogenetics workshop.** Workshop organized by the Italian Society for Evolutionary Biology (SIBE) at the University of Trento.
- 12/06/2023 – 13/06/2023  **The ancient DNA revolution: from the initial attempts to the Nobel Prize.** Genetics school "Mario Polsinelli" organized by The Italian Geneticists Association (AGI) at Cortona.
- 31/07/2023 – 4/08/2023  **Introduction to Ancient Metagenomics Summer School.** Online workshop organized by SPAAM Community on data processing and ancient metagenomic analyses.
- 24/02/2021 – 26/02/2021  **SIBE PHYLO Crash Course** Online workshop by the Italian Society for Evolutionary Biology (SIBE), Exploring evolution using tree based methods: phylogenetics, molecular clocks, barcoding, and phylogenomics.

Skills

- Languages  Strong reading, writing and speaking competencies for English (level C1).
- Coding  Bash, Python, R, Github
- Genomic analyses  Relatedness, Genomic structure, Phylogenomics, Coalescent simulations (fastsim-coal, ms), Uniparental markers

Skills (continued)

Bioinformatics	high-performance computing (HPC) clusters, reads processing, Genotype likelihoods, Imputation, Variant calling, Genome assembly
Web Dev	HTML, CSS,
Operating Systems	Windows, MacOS, Linux
Misc.	Academic research, teaching, training, consultation.

Other

Volunteering

05/2023 - 07/2023	Volunteer at SMBE 2023. Volunteer for the international scientific congress SMBE23 at Ferrara organized by the Society for Molecular Biology and Evolution (SMBE) and the University of Ferrara.
01/2025 - ongoing	Summer School Organizer. Organizer for the SIBE (Italian Society of Evolutionary Biology) Summer School 2025. https://sites.google.com/view/sibesummerschool/home-page

Language certifications

2006	Certified Level B2 English (FCE) . Awarded by Cambridge ESOL.
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References

University of Ferrara (Italy)	Prof. Silvia Ghirotto. email: silvia.ghirotto@unife.it
University of Ferrara (Italy)	Prof. Giorgio Bertorelle. email: giorgio.bertorelle@unife.it