Xiang Ge (Xiangge) Luo

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Education

ETH Zurich *Basel, Switzerland*
PHD IN COMPUTATIONAL BIOLOGY *2020.11 - 2025.12*
- Thesis: Modeling tumor mutation trees for evolution-guided precision oncology
- Advisor: Prof. Dr. Niko Beerenwinkel | Second advisor: Dr. Jack Kuipers
- Doctoral committee: Prof. Dr. Ben Raphael, Prof. Dr. Jasmine Foo

ETH Zurich *Zurich, Switzerland*
MASTER OF SCIENCE IN STATISTICS *2018.09 - 2020.09*
- GPA: 5.88/6 – Graduated with distinction
- Thesis: Learning Bayesian networks from ordinal data
- Advisor: Dr. Jack Kuipers

University of Waterloo *Waterloo, Canada*
BACHELOR OF MATHEMATICS *2013.09 - 2018.04*
- GPA: 92% – Graduated with distinction, Dean's Honours List

Research Experience

Computational Biology Group, ETH Zurich *Basel, Switzerland*
SCIENTIFIC ASSISTANT *2020.11 - present*
- Advisor: Prof. Dr. Niko Beerenwinkel
- Developed mathematical and statistical models to infer cancer evolution from cross-sectional single-cell phylogenies, aiming to predict drug resistance and facilitate evolution-guided precision oncology.

Institute of Molecular Systems Biology, ETH Zurich *Zurich, Switzerland*
SEMESTER STUDENT *2019.03 - 2019.07*
- Advisor: Prof. Dr. Mattia Zampieri
- Analyzed E. coli drug response metabolomics data to investigate regulatory and functional relationships between metabolites.

Seminar for Statistics, ETH Zurich *Zurich, Switzerland*
STATISTICS LAB STUDENT *2019.03 - 2019.06*
- Advisor: Dr. Markus Kalisch
- Analyzed mouse experimental data using mixed models to assess bone loss and identify early osteoporosis markers.

Department of Statistics and Actuarial Science, University of Waterloo *Waterloo, Canada*
UNDERGRADUATE RESEARCHER *2017.09 - 2017.12*
- Advisor: Prof. Dr. Alexander Schied
- Derived the Nash equilibrium for risk-averse investors in a market impact game with transient price impact and quadratic transaction costs over finite and infinite horizons.

Awards & Scholarships

2025	**ISMB/ECCB 2025 Ian Lawson Van Toch Memorial Award for Best Student Paper**, ISCB	*United Kingdom*
2025	**ISMB/ECCB 2025 Conference Fellowship & Dependent Care Grant**, ISCB (USD 950)	*United Kingdom*
2024	**SIB Remarkable Outputs 2023 Award**, Swiss Institute of Bioinformatics	*Switzerland*
2018	**Undergraduate Student Research Award**, NSERC (CAD 4,500)	*Canada*
2018	**President's Research Award**, University of Waterloo (CAD 1,500)	*Canada*
2016	**President's International Experience Award**, University of Waterloo (CAD 1,500)	*Canada*
2014	**Isabel Farrar Undergraduate Entrance Scholarship**, University of Waterloo (CAD 4,000)	*Canada*
2014	**President's Scholarship of Distinction**, University of Waterloo (CAD 2,000)	*Canada*

Publications

Xiang Ge Luo, Jack Kuipers, Kevin Rupp, Koichi Takahashi and Niko Beerenwinkel. Bayesian inference of fitness landscapes via tree-structured branching processes. *Bioinformatics*, 41:i160-i169, 2025. (**ISMB/ECCB 2025**, acceptance rate 17%)

Xiang Ge Luo, Jack Kuipers and Niko Beerenwinkel. Joint inference of exclusivity patterns and recurrent trajectories from tumor mutation trees. *Nature Communications*, 14:3676, 2023. (**RECOMB 2022**, acceptance rate 21.3%)

Xiang Ge Luo, Giusi Moffa and Jack Kuipers. Learning Bayesian networks from ordinal data. *Journal of Machine Learning Research*, 22:1-44, 2021.

Xiangge Luo and Alexander Schied. Nash equilibrium for risk-averse investors in a market impact game with transient price impact. *Market Microstructure and Liquidity*, 5:2050001, 2020.

Conferences, Seminars & Workshops

2025.07	**Contributed talk**, ISMB/ECCB 2025 Conference	*Liverpool, UK*
	• Bayesian inference of fitness landscapes via tree-structured branching processes	
2025.04	**Poster**, 6th Zurich Precision Oncology Symposium	*Zurich, Switzerland*
	• FiTree: fitness inference from single-cell phylogenies applied to acute myeloid leukemia data	
2025.03	**Invited talk**, D-BSSE Departmental Seminar Series, ETH Zurich	*Basel, Switzerland*
	• Fitness inference from single-cell phylogenies using tree-structured branching processes	
2025.02	**Contributed talk**, PhyloBasel Seminar Series, ETH Zurich	*Basel, Switzerland*
	• Bayesian inference of fitness landscapes via tree-structured branching processes	
2024.06	**Award talk**, SIB Days – The Swiss Bioinformatics Summit	*Virtual*
	• Mining tumor mutation trees with TreeMHN for evolution-guided precision oncology	
2023.06	**Contributed talk**, SKINTEGRITY.CH Annual Retreat	*Spiez, Switzerland*
	• Joint inference of exclusivity patterns and recurrent trajectories from tumor mutation trees	
2022.06	**Contributed talk**, Mutual Hazard Networks Workshop	*Virtual*
	• Joint inference of exclusivity patterns and recurrent trajectories from tumor mutation trees	
2022.05	**Contributed talk**, RECOMB 2022 Conference	*San Diego, USA*
	• Joint inference of exclusivity patterns and recurrent trajectories from tumor mutation trees	
2022.04	**Contributed talk**, OLISSIPO Exchange Week	*Lisbon, Portugal*
	• Joint inference of exclusivity patterns and recurrent trajectories from tumor mutation trees	
2022.03	**Poster**, Ascona Workshop 2022	*Ascona, Switzerland*
	• Joint inference of exclusivity patterns and recurrent trajectories from tumor mutation trees	

Teaching

Spring 2023	**Teaching Assistant**, Statistical Models in Computational Biology	*ETH Zurich*
Spring 2022	**Head Teaching Assistant**, Statistical Models in Computational Biology	*ETH Zurich*
Spring 2022	**Teaching Assistant**, LSZGS Advanced Block Course Computational Biology	*ETH Zurich*
Spring 2021	**Teaching Assistant**, Statistical Models in Computational Biology	*ETH Zurich*

Supervision

2025	**Marie Dogo**, Master Student, Mines Paris - PSL
2023	**Laura Quintas**, Master Student, INESC-ID (Co-supervised with Monica Baciu-Dragan)
2023	**Laurenz Keller**, Master Student, ETH Zurich (Co-supervised with Pawel Piotr Czyz)
2022	**Jiayi Wang**, Master Student, ETH Zurich (Co-supervised with Pawel Piotr Czyz)

Academic Services

Journal Reviewer for Genome Research, Bioinformatics   **Conference Reviewer** for RECOMB, ISMB

Languages and Skills

Coding	Python, R, C++, MATLAB, Git, Snakemake, bash, LaTeX
Languages	English (working proficiency), Mandarin (native), Cantonese (native)