

# Xinrui JIA

(shin-ray)

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## EDUCATION

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### École Polytechnique Fédérale de Lausanne (EPFL)

PhD in Computer Science

Theory of Computation Lab, research area: algorithms

09.2018 - Present

Lausanne, Switzerland

### University of Waterloo

Bachelor's in Math *with Distinction - Dean's Honours List*

Majors: Combinatorics and Optimization, Pure Mathematics

09.2014 - 06.2018

Waterloo, Canada

## SKILLS

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**Optimization:** Discrete optimization, algorithm design, modelling and problem solving.

**Programming:** Experience with Python, SQL, C/C++, Java, Matlab, Gurobi.

## PROFESSIONAL EXPERIENCE

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### AI/ML Intern, Apple Inc.

Conducted applied research in Machine Learning Platform and Technologies team.

Designed techniques for optimization of system-wide operations and implemented methods in Python. *Details proprietary.*

06.2021 - 12.2021

Zurich, Switzerland

### Private Tutor, Self-employed

Tutored University of Waterloo classes over video conferences: Analysis, Intro to Optimization, Intro to Combinatorics, Graph Theory.

06.2020 - 05.2021

Remote

### Backend Application Developer, HAA Analytics

Used Python, NumPy, Pandas, SQL to build reinsurance analytics web app at start-up.

Collaborated with team of 6 programmers in every part of software development cycle.

Product successfully demoed 3 months into internship.

05.2015 - 08.2015

Toronto, Canada

## ACADEMIC EXPERIENCE

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### Visiting Student Researcher, Simons Institute at UC Berkeley

Participated in program Data-Driven Decision Processes.

08.2022 - 09.2022

Berkeley, USA

### Research Intern, EPFL Discrete Optimization Lab

Proved guarantees for two algorithms for max dispersion problem and explored applications to image recognition. Presented results with visualizations in PyGame.

01.2017 - 04.2017

Lausanne, Switzerland

### Research Intern, University of Waterloo

Implemented key-exchange protocol using C++ and SageMath. Developed

cryptanalysis attack for proposed post-quantum Diffie-Hellman key-exchange protocol.

05.2016 - 08.2016

Waterloo, Canada

## LANGUAGES

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English: Native

French: Intermediate

German: Beginner

## COMPETITIONS AND AWARDS

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University of Waterloo Mathematics Scholarships (31 000 cad)

2014 - 2018

Ontario Music Festivals (provincial competition, grade 10 violin)

2013

Windsor Symphony Youth Orchestra (concertmaster)

2012-2013

Canada National Math Camp (invitation only top 21 students nationally)

2012

Western University High School Debate Competition (quarter finalist)

2012

## ACTIVITIES AND HOBBIES

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Rock climbing, hiking, violin, chamber music, choir.

## PUBLICATIONS

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1. Xinrui Jia, Ola Svensson, and Weiqiang Yuan. The Exact Bipartite Matching Polytope Has Exponential Extension Complexity. In *Symposium on Discrete Algorithms* (SODA 2023).
2. Xinrui Jia, Lars Rohwedder, Kshiteej Sheth, and Ola Svensson. Towards Non-Uniform k-Center with Constant Types of Radii. In *Symposium on Simplicity in Algorithms* (SOSA 2022).
3. Buddhima Gamlath, Xinrui Jia, Adam Polak, and Ola Svensson. Nearly-tight and Oblivious Algorithms for Explainable Clustering. In *Conference on Neural Information Processing Systems* (NeurIPS 2021).
4. Xinrui Jia, Kshiteej Sheth, and Ola Svensson. Fair Colorful k-Center Clustering. In *Proceedings of the 21st International Conference on Integer Programming and Combinatorial Optimization* (IPCO 2020).