

Joonhyuk Ko

School Address

School of Engineering and Applied Science
University of Virginia
Charlottesville, VA 22903

Contact Information

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RESEARCH INTERESTS

My research interests are in differential privacy and algorithmic fairness. I use constrained optimization to address problems in high-stakes decision-making tasks (e.g., how privacy noise affects data quality for fund allocation). More broadly, I am interested in applying mathematical modeling to study practical societal problems (e.g., strategic classification in hiring and admissions).

EDUCATION

University of Virginia

B.S. in Computer Science, B.A. in Mathematics
GPA: 3.997/4.000; (both) *Major GPA*: 4.000/4.000

Aug 2022 – May 2026
Charlottesville, VA

Relevant Courses:

Machine Learning[†], Convex Optimization[†], Algorithms, Real Analysis, Abstract Algebra, Linear Algebra, Probability, Mathematical Statistics, Partial Differential Equations, Theory of Computation, Software Engineering, Computer Systems and Organization, Reinforcement Learning*, Intermediate Microeconomics*

[†]Graduate-level Courses *Fall 2025 Courses

RESEARCH EXPERIENCE

Research Intern

Carnegie Mellon University, School of Computer Science
Advisor: **Dr. Steven Wu**

May 2025 – Present
Pittsburgh, PA

- Summer visiting student researcher with [Prof. Steven Wu](#)'s group.

Research Assistant

University of Virginia, Department of Computer Science
Advisor: **Dr. Ferdinando Fioretto**

Jan 2024 – Present
Charlottesville, VA

- Research topics: Differential Privacy and Algorithmic Fairness
- Undergraduate Research Assistant at [RAISE](#) (Responsible AI for Science and Engineering) group
- Led to the following publication(s): [C1](#), [P1](#)

Research Fellow

University of Virginia, School of Engineering and Applied Science
Advisor: **Dr. Ferdinando Fioretto**

May 2024 – Aug 2024
Charlottesville, VA

- Selected as a Dean's Undergraduate Engineering Research Fellow.
- Awarded \$4,800 from the engineering department to pursue full-time research for summer 2024.
- Attended weekly professional development workshops.
- Presented at 2024 Fall Undergraduate Research Expo at UVA.

PUBLICATIONS

Preprints

- P1. **Joonhyuk Ko**, Juba Ziani, Ferdinando Fioretto. *“Optimal Allocation of Privacy Budget on Hierarchical Data Release.”*
ArXiv Preprint, 2025.

Conference Papers

- C1. **Joonhyuk Ko**, Juba Ziani, Saswat Das, Matt Williams, Ferdinando Fioretto. *“Fairness Issues and Mitigations in (Differentially Private) Socio-Demographic Data Processes.”*
AAAI Conference on Artificial Intelligence (AAAI), 2025. **Oral Presentation (< 5%)**.

TEACHING EXPERIENCE

Teaching Assistant

Jan 2023 – Dec 2023

University of Virginia, Department of Applied Mathematics

Charlottesville, VA

- Graded assignments and quizzes, and provided feedback to students for the following courses:
 - APMA 6410 (Graduate-level): Engineering Mathematics I (Fall 2023)
 - APMA 2130: Ordinary Differential Equations (Spring 2023)

INVITED TALKS

Panelist: *Preparing for Undergraduate Research (CS 2501).*

Department of Computer Science, University of Virginia.

Feb 2025

Talk: *Fairness Issues and Mitigations in (Differentially Private) Socio-Demographic Data Processes.*

TOC4Fairness Seminar, Simons Foundation. [\[link\]](#)

Mar 2025

SKILLS

Programming Languages

Python, C, x86-64, Java, JavaScript, TypeScript, MATLAB, SQL, L^AT_EX

Programming Tools/Libraries

SLURM, Git, NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn, Gurobi, CVXPY, SciPy

Languages

English, Korean

HONORS

Louis T. Rader Undergraduate Research Award[‡], Top Honors [\[link\]](#), 2025

The Raven Society[¶] Member, 2025

AAAI 2025 Student Travel Award, 2025

CRA Outstanding Undergraduate Researcher Award, Honorable Mention [\[link\]](#), 2025

Dean's Undergraduate Engineering Research Fellowship, 2024

Dean's List, 2022-2025

[‡]The highest undergraduate CS research award at the University of Virginia

[¶]The oldest and most prestigious honorary society at the University of Virginia

REFERENCES

Dr. Ferdinando Fioretto

Assistant Professor, Department of Computer Science

University of Virginia

Email: fioretto@virginia.edu

Dr. Juba Ziani

Assistant Professor, H. Milton Stewart School of Industrial and Systems Engineering

Georgia Institute of Technology

Email: jziani3@gatech.edu