

RESEARCH INTERESTS

Algorithmic Fairness, Differential Privacy, Optimization, and Uncertainty Quantification.

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

Charlottesville, VA
Aug 2022 – May 2026

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^{*}, Natural Language Processing^{*}, Intermediate Microeconomics^{*}

[†]Graduate-level Courses ^{*}Fall 2025 Courses

RESEARCH EXPERIENCE

University of Virginia, Department of Computer Science
Research Assistant

Charlottesville, VA
Jan 2024 – Present

Advisor: **Dr. Ferdinando Fioretto**

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

Carnegie Mellon University, School of Computer Science
Research Intern

Pittsburgh, PA
May 2025 – Aug 2025

Advisor: **Dr. Steven Wu**

- Research topics: Uncertainty Quantification, Learning Theory
- Summer visiting researcher in [Prof. Steven Wu](#)'s group on a joint project with [Prof. Andrew Ilyas](#).

University of Virginia, School of Engineering and Applied Science
Research Fellow

Charlottesville, VA
May 2024 – Aug 2024

Advisor: **Dr. Ferdinando Fioretto**

- 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 a poster at the 2024 Fall Undergraduate Research Expo at UVA.

PUBLICATIONS

Conference Proceedings

- 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%)**.

Preprints

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

AWARDS AND HONORS

- CRA Outstanding Undergraduate Researcher Award** [\[link\]](#) 2025, 2026
Finalist (2026), Honorable Mention (2025).
Recognizes North American undergraduates with outstanding computing research potential.
- Louis T. Rader Undergraduate Research Award** [\[link\]](#) 2025
Top Honors. The highest undergraduate CS research award at the University of Virginia (\$750 award).
- The Raven Society Member** 2025
The oldest and most prestigious honorary society at the University of Virginia.
- AAAI 2025 Student Travel Award** 2025
Received NSF-sponsored travel funding to support conference participation (\$1,800 award).
- Dean's Undergraduate Engineering Research Fellowship** 2024
Received a stipend to pursue full-time research for summer 2024 (\$4,800 award).

INVITED TALKS

- Talk:** *Fairness Issues and Mitigations in (Differentially Private) Socio-Demographic Data Processes.*
TOC4Fairness Seminar, Simons Foundation. [\[link\]](#) Mar 2025
- Panelist:** *Preparing for Undergraduate Research (CS 2501).*
Department of Computer Science, University of Virginia. Feb 2025

ACADEMIC SERVICES

- Program Committee**
AAAI Conference on Artificial Intelligence (AAAI), 2026.

TEACHING EXPERIENCE

- Teaching Assistant**
APMA 6410 (Graduate-level): Engineering Mathematics I (Fall 2023)
APMA 2130: Ordinary Differential Equations (Spring 2023)

ADDITIONAL INFORMATION

- Technical Skills:** Python, C, MATLAB, \LaTeX , SLURM, Gurobi, CVXPY, SciPy, TypeScript
Languages: English, Korean
Nationality: U.S. Citizen

REFERENCES

- Dr. Ferdinando Fioretto**
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University of Virginia
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- Dr. Juba Ziani**
Assistant Professor, H. Milton Stewart School of Industrial and Systems Engineering
Georgia Institute of Technology
Email: jziani3@gatech.edu
- Dr. Steven Wu**
Associate Professor, School of Computer Science
Carnegie Mellon University
Email: zstevenwu@cmu.edu