

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: <i>Fairness Issues and Mitigations in (Differentially Private) Socio-Demographic Data Processes.</i>	
TOC4Fairness Seminar, Simons Foundation. [link]	Mar 2025
Panelist: <i>Preparing for Undergraduate Research (CS 2501).</i>	
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, L ^A T _E X, SLURM, Gurobi, CVXPY, SciPy, TypeScript
Languages: English, Korean
Nationality: U.S. Citizen

REFERENCES

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