

## RESEARCH INTERESTS

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

## EDUCATION

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### 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<sup>†</sup>, Convex Optimization<sup>†</sup>, Algorithms, Real Analysis, Abstract Algebra, Linear Algebra, Probability, Mathematical Statistics, Partial Differential Equations, Theory of Computation, Software Engineering, Computer Systems and Organization, Reinforcement Learning<sup>\*</sup>, Natural Language Processing<sup>\*</sup>, Intermediate Microeconomics<sup>\*</sup>

<sup>†</sup>Graduate-level Courses    <sup>\*</sup>Fall 2025 Courses

## RESEARCH EXPERIENCE

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### Carnegie Mellon University, School of Computer Science

Research Intern

Pittsburgh, PA  
May 2025 – Present

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, 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](#)

### University of Virginia, School of Engineering and Applied Science

Research Assistant

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

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### 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

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

## INVITED TALKS

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<b>Talk:</b> <i>Fairness Issues and Mitigations in (Differentially Private) Socio-Demographic Data Processes</i> . TOC4Fairness Seminar, Simons Foundation. <a href="#">[link]</a>	Mar 2025
<b>Panelist:</b> <i>Preparing for Undergraduate Research (CS 2501)</i> . Department of Computer Science, University of Virginia.	Feb 2025

## ACADEMIC SERVICES

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<b>Reviewer</b> AAAI Conference on Artificial Intelligence (AAAI), 2026.
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## TEACHING EXPERIENCE

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<b>Teaching Assistant</b> APMA 6410 (Graduate-level): Engineering Mathematics I (Fall 2023) APMA 2130: Ordinary Differential Equations (Spring 2023)
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## ADDITIONAL INFORMATION

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<b>Technical Skills:</b> Python, C, MATLAB, $\text{\LaTeX}$ , SLURM, Gurobi, CVXPY, SciPy, TypeScript
<b>Languages:</b> English, Korean
<b>Nationality:</b> U.S. Citizen

## REFERENCES

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<b>Dr. Ferdinando Fioretto</b> Assistant Professor, Department of Computer Science University of Virginia Email: <a href="mailto:fioretto@virginia.edu">fioretto@virginia.edu</a>
<b>Dr. Juba Ziani</b> Assistant Professor, H. Milton Stewart School of Industrial and Systems Engineering Georgia Institute of Technology Email: <a href="mailto:jziani3@gatech.edu">jziani3@gatech.edu</a>
<b>Dr. Steven Wu</b> Associate Professor, School of Computer Science Carnegie Mellon University Email: <a href="mailto:zstevenwu@cmu.edu">zstevenwu@cmu.edu</a>