

John C. Kolesar

AKW 211, 51 Prospect Street, New Haven, CT 06511

☎ 301-503-5299 (cell) • ✉ jkolesar98@gmail.com, john.kolesar@yale.edu

📄 johnckolesar.github.io, www.linkedin.com/in/john-kolesar-a1348b24a

Education

Yale University

Ph.D., Computer Science

Advisor: Ruzica Piskac

Earned M.S. en route to Ph.D. in 2022

New Haven, Connecticut

2020–2026 (anticipated)

Cornell University

Bachelor of Arts with Distinction in All Subjects

Ithaca, New York

2016–2020

Majors:

- Mathematics (Magna cum Laude, Computer Science concentration)
- Classics (Latin concentration)

Minors:

- Computer Science
- Philosophy

Cumulative Grade Point Average: 3.97

Computer Science GPA: 4.02

Honors

Phi Beta Kappa

Cornell University College of Arts & Sciences

2020

Nathan Hale Associates Fellow

Yale Graduate School of Arts & Sciences

2021

Arts & Sciences Dean's List

Cornell University

All available semesters

Graduate Course Work Performance

Grade of H (maximum grade for Yale GSAS) in all graded graduate courses

Research Interests

- Formal Methods
- Program Verification
- Cryptography
- Zero-Knowledge Proofs
- Symbolic Execution
- Software-Defined Networking
- Automatic Program Repair
- Competitive Programming

Conference Publications

- o John Kolesar, Shan Ali, Timos Antonopoulos, Ruzica Piskac. **Coinductive Proofs of Regular Expression Equivalence in Zero Knowledge**. Under Submission.
- o John Kolesar, Tancrede Lepoint, Martin Schäfer, Willem Visser. **Safe Validation of Pricing Agreements**. *ICSE*, 2025 (To Appear).
- o Daniel Luick, John Kolesar, Timos Antonopoulos, William R. Harris, James Parker, Ruzica Piskac, Eran Tromer, Xiao Wang, Ning Luo. **ZKSMT: A VM for Proving SMT Theorems in Zero Knowledge**. *USENIX Security*, 2024.
- o John C. Kolesar, Ruzica Piskac, William T. Hallahan. **Checking Equivalence in a Non-strict Language**. *OOPSLA*, 2022.
- o Jialu Zhang, De Li, John C. Kolesar, Hanyuan Shi, Ruzica Piskac. **Automated Feedback Generation for Competition-Level Code**. *ASE*, 2022.

Journal Publications

- o John C. Kolesar, Ruzica Piskac, William T. Hallahan. **Checking Equivalence in a Non-strict Language**. Under Submission.

Talks

ZK Proofs for SMT Theorems and Regular Expression Equivalence

Carnegie Mellon University, CyLab Crypto Seminar

November 2024

Coinductive Proofs of Regular Expression Equivalence in Zero Knowledge

FMCAD 2024 Student Forum

October 2024

ZKSMT: A VM for Proving SMT Theorems in Zero Knowledge

New York University, NJPLS

May 2024

Poster Presentations

Coinductive Proofs of Regular Expression Equivalence in Zero Knowledge

FMCAD 2024 Student Forum

October 2024

Checking Equivalence in a Non-strict Language

Yale University

October 2023

Industry Work Experience

Amazon Web Services

Applied Scientist Intern, New York City

Summer 2024, Summer 2025

Manager: Martin Schäfer

Microsoft One Engineering System

Research Intern, Remote

Summer 2022

Supervisor: Josh Becker

Mentor: Grant Holliday

Aretec Inc.

Big Data Software Application Developer

Summer 2018, Summer 2019

Contractor for U.S. Securities and Exchange Commission

New York City (2018)

Washington, D.C. (2019)

Mentoring Experience

Zero-Knowledge Regular Expression Equivalence

Shan Ali

Yale University

Summer 2024

Teaching Experience

Graduate Teaching Fellow at Yale University.....

CPSC 415/515: Law and Large Language Models

Taught by Ruzica Piskac and Scott Shapiro

Spring 2025

CPSC 458/558: Automated Decision Systems

Taught by Stephen Slade

Spring 2024

CPSC 323: Introduction to Systems Programming and Computer Organization

Taught by James Glenn and Jay Lim

Fall 2023

CPSC 484/584: Introduction to Human-Computer Interaction

Taught by Marynel Vázquez

Spring 2023

CPSC 435/535: Building an Internet Router

Taught by Robert Soule

Fall 2022

CPSC 433/533: Computer Networks

Taught by Anurag Khandelwal

Spring 2022

CPSC 323: Introduction to Systems Programming and Computer Organization

Taught by Ruzica Piskac and Rob Brunstad

Fall 2021

Undergraduate Teaching Assistant at Cornell University.....

CS 3110: Data Structures and Functional Programming

Taught by Nate Foster

Spring 2020

CS 4820: Introduction to Analysis of Algorithms

Taught by Eva Tardos

Fall 2019

CS 3110: Data Structures and Functional Programming

Taught by Michael Clarkson

Fall 2018

CS 2112: Honors Object-Oriented Design and Data Structures

Taught by Dexter Kozen

Fall 2017

Other Work, Research, and Volunteering Experience

Cornell University

Computer Science Research

Research Advisor: Nate Foster

Subject: Software-Defined Networking with P4

Ithaca, New York

Fall 2019, Spring 2020

Tenley Achievement Program

Office Manager

Washington, D.C.

Summer 2017

Yale University Computer Science Department

Graduate Student Advisory Committee Member

New Haven, Connecticut

2023–2024 Academic Year

Yale University Computer Science Department

New Ph.D. Student Mentor

New Haven, Connecticut

2023–2024, 2024–2025 Academic Years

National University of Colombia*Web Chair for LPAR 2023***Squash Haven***Volunteer Tutor (Computer Science, Mathematics)***Yale University Computer Science Department***Website Manager for Formal Methods Meetup 2023***Yale University Computer Science Department***Ph.D. Student Buddy for Admitted Student Day***Manizales, Colombia (remote)***June 2023***New Haven, Connecticut***Spring 2023, Fall 2023***New Haven, Connecticut***October 2023***New Haven, Connecticut***Spring 2022***Skills**

- Proficiency in Java, C, C++, OCaml, Q, Haskell, Python, JavaScript, TypeScript
- Experience with Dafny, Coq, Standard ML, C#, Kusto, Langium
- Experience with SMT solvers, Excel, LaTeX, Unity, Blender, VirtualBox, Docker