# JESSE COMER.

### University of Pennsylvania

jessecomer.github.io ♦ jacomer@seas.upenn.edu

#### RESEARCH

I am broadly interested in applications of logic in computer science. There are currently two major strands to my research. The first is the specification and verification of *resilience properties* in critical software and cyber-physical systems. The second is in the development of algorithms for the repair of databases and database queries. In both strands, the fundamental underlying tools are *computational logic* and *formal methods*.

#### **EDUCATION**

PhD Student, Computer and Information Science, University of Pennsylvania.

M.S., Computer Science, University of Texas at Austin.

Aug 2023 - Present Aug 2023

M.Sc., Logic, University of Amsterdam.

Aug 2023

B.A., Economics, University of California, Los Angeles.

Dec 2016

#### **TEACHING**

Mathematical Foundations of Computer Science. Instructor (UPenn). Summer 2024

Algorithms. Teaching Assistant (UT Austin).

Spring 2023

Logic, Second Course. Tutor (UCLA).

Spring 2016

Logic, First Course. Tutor (UCLA).

Fall 2015, Winter 2016

#### OTHER WORK HISTORY

United States Marine Corps, Reserve. Field Artillery Officer.

Jul 2021 - Present

- Currently serving as Battery Executive Officer.
- Previously held billets as Battalion Fire Direction Officer and Battalion Liaison Officer.

## United States Marine Corps. Field Artillery Officer.

Jan 2017 - Jul 2021

- Held billets as Fire Direction Officer, Platoon Commander, and Fire Support Officer.
- Deployed with the 15th Marine Expeditionary Unit.

### JOURNAL ARTICLES

## Craig Interpolation for Decidable First-Order Fragments.

LMCS 21(3): 22:1-22:23

B. ten Cate, J. Comer.

### CONFERENCE PAPERS

A Unifying Algorithm for Hierarchical Queries.	PODS 2026
M. Abo Khamis, J. Comer, P. Kolaitis, S. Roy, V. Tannen.	(To appear)
	TOD TO A A A A A

The Complexity of Finding Missing Answer Repairs.

J. Comer, V. Tannen.

(To appear)

Lovàsz Theorems for Modal Languages.

AiML 2024

J. Comer.

Time-Bounded Resilience. WRLA 2024

T. Ban Kirigin, J. Comer, M. Kanovich, A. Scedrov, C. Talcott.

Craig Interpolation for Decidable First-Order Fragments.

FoSSaCS 2024

B. ten Cate, J. Comer.

## **TALKS**

Craig Interpolation for Guarded Fragments.

DPFO 2023

B. ten Cate, J. Comer.

## **MASTER'S THESIS**

Homomorphism Counts, Database Queries, and Modal Logics.

ILLC 2023

Committee: Malvin Gattinger (chair), Balder ten Cate (supervisor), Nick Bezhanishvili, Ronald de Haan

## TECHNICAL SKILLS

Python (incl. PyTorch/TensorFlow), Coq, Java