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. Aug 2023 - Present

M.S., Computer Science, University of Texas at Austin. 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 Battalion Liaison Officer.
- Previously held billet as Battalion Fire Direction 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 (To appear)*
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)

The Complexity of Finding Missing Answer Repairs. *ICDT 2026*
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