

# Andrea Piras

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## EDUCATION

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### University of Illinois Chicago

*Ph.D Candidate in Computer Science*

Current Research Area: Causal Inference and Graph-based Learning

Jan 2025 – Present

*Chicago, IL*

### University of Illinois Chicago

*M.S. in Computer Science*

GPA: 4.0

Feb 2023 – Dec 2024

*Chicago, IL*

Relevant Coursework: Big Data Mining; Machine Learning; High Performance Processors and Systems; Causal Inference and Learning; Computer Security; Natural Language Processing

### Politecnico di Milano

*M.S. in Computer Science and Engineering*

Final Mark: 110L/110, GPA: 3.82

Sep 2022 – Dec 2024

*Milan, Italy*

Relevant Coursework: Data Mining; Information Systems; Model and Data Analysis; Software Engineering 2

### Politecnico di Milano

*B.S. in Engineering of Computing Systems*

Final Mark: 110/110, GPA: 3.76

Sep 2019 – Sep 2022

*Milan, Italy*

Relevant Coursework: Algorithms and Informatics Principles; Computer Architectures and Operation Systems; Software Engineering; Databases; Data Logic Design; Bioinformatics; Information Systems

## EXPERIENCE

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### Teaching Assistant

*University of Illinois Chicago*

- Teaching Assistant for Introduction to Data Science Course (CS418).

Jan 2025 – May 2025

### Graduate Hourly Assistant

*University of Illinois Chicago*

- Developing an algorithm to perform causal discovery on relational data using graph representations

Jan 2024 – Dec 2025

### Visiting Researcher

*Northeastern University - Brigham and Women's Hospital*

- Master's thesis on data engineering and representation learning, focusing on applications in the biomedical domain

Aug 2023 – Present

### Research Scholar

*NECSTLab - Politecnico di Milano*

- Contributed to various projects in academic and research settings, developing problem-solving skills

Sep 2020 – Present

## PUBLICATIONS

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### Relational Causal Discovery with Latent Confounders

*Conference on Uncertainty in Artificial Intelligence (UAI), 2025*

- Developed RelFCI, a causal discovery algorithm for relational data with latent confounders, extending FCI to non-i.i.d. settings and enabling accurate structure recovery.

### CPIExtract: A software package to collect and harmonize small molecule and protein interactions

*Submitted to Bioinformatics Journal, 2024*

- Developed a CPIExtract, a pipeline to extract Compound-Protein Interaction (CPI) data from multiple sources and integrate them, to create augmented datasets.

## PROJECTS

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**Data Extraction and Analysis using Knowledge Graphs Representation** Aug 2023 – Dec 2024

*Northeastern University & Brigham and Women's Hospital*

- Worked on developing and evaluating a pipeline to extract CPI data to improve the performance of machine learning models

**Automatic Domain Specific Genome Graph Partitioning** Sep 2022 – Aug 2023

*GenoGra*

- Developed an algorithm for genome graph partitioning and applied multiple graph alignment tools to speed up the overall process for a genomic analysis framework

**GAGET - Genome Assembly Graph Evaluation Toolkit** Feb 2021 – Sep 2022

*Politecnico di Milano*

- Developed a tool to evaluate genome assembly quality using a graph representation
- Created a Python application to visualize the computed evaluation metrics and the genome graph itself
- Devised a new algorithm to select the best alignments to represent the reference genome

**Graph Analytics Exploration and Analysis of Electric Networks** Sep 2020 – Jan 2021

*RSE S.p.A*

- Created new metrics ad hoc for the energetic domain to study the criticalities of electric networks
- Developed a web-based visualization tool to visualize these metrics and other calculated information

## TECHNICAL SKILLS

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**Languages:** Python, C, C++, Java, JavaScript, SQL

**Frameworks:** React, CUDA, Spark, Node.js

**Tools:** Git, LaTeX, Google Cloud Platform, VS Code