

# Joana M. F. da Trindade

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## RESEARCH INTERESTS

query optimization, data processing systems, graph data management

## EDUCATION

**Massachusetts Institute of Technology (MIT)**

Fall 2016– Spring 2024

*PhD in EECS*, CGPA 5.0/5.0

Thesis: [Systems and Techniques for Efficient Real-World Graph Analytics](#)

PIs: Prof. Sam Madden (Data Systems Group), and Prof. Julian Shun (Theory of Computation).

- Graduate EECS: Database Systems, Distributed Systems, Advances in Computer Vision, Graph Analytics (audited), Introduction to the Theory of Computation
- Minor: Fund. of Music Theory, Digital Music Processing

**University of Illinois at Urbana-Champaign (UIUC)**, *M.S. in CS*

Advisor: Prof. Marianne Winslett

- Thesis: Supporting Dynamic Queries and Annotations Over Data Graphs
- Graduate Coursework: Advanced Database Systems, Advanced Operating Systems, Algorithms, Cloud Computing Infrastructure, Fault-Tolerant Digital Systems Design, Parallel Computer Architecture, Secure Data Management

**Universidade Federal do Rio Grande do Sul (degree) / TU Kaiserslautern (exch. program)**, *B.S. in CS*

Thesis Advisors: Prof. Dr. Dieter Rombach and Dipl.-Inf. Thorsten Keuler (exch. program at TU-KL)

- Thesis: Metamodel based Architecture Evaluation of Software Systems

## AWARDS

1. **Microsoft Research PhD Fellowship**, Class of 2019.
2. **EECS Merrill Lynch Graduate Fellowship**, MIT, 2016.
3. **Sloan Scholar, Alfred P. Sloan Foundation's MPHD Program**, MIT, 2016.
4. **10 Google Peer Bonuses, 6 Google Kudos Awards, 1 Google Spot Bonus**, for technical and professional service contributions. Spot bonus awarded for internal launch of fleet-wide read / write RPC real-time latency analysis of Colossus clients and related storage servers, 2012–2015.
5. **Siebel Scholar**, Class of 2011.

## TEACHING & MENTORSHIP

1. Teaching Assistant for [Software Systems for Data Science \(6.080\)](#)([github](#)), Fall 2019
2. Mentoring: Mengyuan Sun, Master of Engineering, Fall 2019 and Spring 2020

## EXPERIENCE

**Intel**, Portland, OR (remotely from Boston)

Summer 2021

*Graduate Intern, Intel Optane Group Systems Pathfinding*

- Worked with Dr. Sanjeev Trika and Dr. Jawad Khan on using Optane PMEM for temporal graph analytics. Co-authored patent with Intel collaborators.

**Microsoft Research**, New York, NY (remotely from Boston)

Summer 2020

*Research Intern, AI for Systems Group at MSR NYC (Mentor: Dr. Sid Sen)*

- Evaluated potential benefits of using hybrid KV-store indexing strategy for Azure Redis (internal customers).

**Microsoft**, Redmond, WA

Summer 2017

*Research Intern, Cloud and Information Services Lab (Mentor: Dr. Carlo Curino)*

- Query optimization for large-scale provenance graphs. Work published at ICDE 2020; co-authored patent with Microsoft collaborators.

**Google Inc**, New York, NY and Mountain View, CA (2016)

2012–2016

*Software Engineer, Apps and Storage Infrastructure*

- 2015–2016: In charge of infrastructure and monitoring tasks on both backend and frontend components for Google Jamboard.
- 2013–2015: Storage Analytics team. Helped local Storage teams with performance-engineering related analysis (e.g., distributed caching and placement policies, RPC latency distributions for read and write OPs). Storage systems included Bigtable, Colossus, Blobstore, and Spanner.

## SELECTED PATENTS

1. **Joana Matos Fonseca da Trindade** (Intel), Jawad Khan (Intel), and Sanjeev Trika (Google), US 20230027351, “[Temporal Graph Analytics on Persistent Memory](#).” Filed September 21st, 2022.
2. **Joana Matos Fonseca da Trindade** (Microsoft), Konstantinos Karanasos (Microsoft), and Carlo Aldo Curino (Microsoft), US US20200265049A1, “[Materialized graph views for efficient graph analysis](#).” Filed February 15th, 2019.
3. **Joana M. Fonseca da Trindade** (IBM Research T. J. Watson), Anastasios Kementsietsidis (IBM Research T. J. Watson) and Mudhakar Srivatsa (IBM Research T. J. Watson), US 20120327087, “[Supporting Recursive Dynamic Provenance Annotations Over Data Graphs](#).” Filed June 27, 2011.

## INVITED TALKS

1. “Kaskade: Graph Views for Efficient Graph Analytics”, University of Chicago (hosted by [ChiData Group](#)), May 2020.
2. “Kaskade: Graph Views for Efficient Graph Analytics”, Microsoft (hosted by [Gray Systems Lab](#)), April 2020.
3. “[Graph Views for Efficient Graph Analytics](#)”, Imperial College (hosted by [LSDS Group](#)), April 2018.

## SELECTED PUBLICATIONS

1. **J. M. F. da Trindade**, J. Shun, S. Madden and N. Tatbul, “[Kairos: Efficient Temporal Graph Analytics on a Single Machine](#).” (arXiv 2024 pre-print).
2. **J. M. F. da Trindade**, J. Shun, S. Madden and N. Tatbul, “Kairos: Efficient Temporal Graph Analytics on a Single Machine.” *NEDB 2023, Cambridge, MA (poster)*
3. M. Sun, **J. M. F. da Trindade**, S. Madden, J. Shun and N. Tatbul, “In-memory Graph Partitioning for Efficient Temporal Graph Analytics on NVRAM.” *NEDB 2020, Cambridge, MA (poster)*
4. **J. M. F. da Trindade**, K. Karanasos, C. Curino, S. Madden and J. Shun, “Kaskade: Graph Views for Efficient Graph Analytics.” *ICDE 2020, Dallas, TX April 2020*.
5. **J. M. F. da Trindade**, K. Karanasos, C. Curino, S. Madden and J. Shun, “[Kaskade: Graph Views for Efficient Graph Analytics](#).” (arXiv 2019 extended pre-print).
6. M. Vartak, **J. M. F. da Trindade**, M. Zaharia and S. Madden, “[MISTIQUE: A System to Store and Query Model Intermediates for Model Diagnosis](#).” *SIGMOD 2018, Houston, TX, June 2018*.
7. A. Ilyas, **J. M. F. da Trindade**, R. C. Fernandez and S. Madden, “[Extracting Syntactic Patterns from Databases](#).” *ICDE 2018, Paris, France, April 2018*.

## SERVICE

- PC member: SIGMOD 2025 (demo track), VLDB 2025, NeurIPS Temporal Graph Learning (TGL) 2023, SoCC 2021-2023

## Outreach

- Panelist for MIT Grad Student Orientation and Virtual Visit Days diversity recruiting events (2020-2022).
- On-site recruiter with Google Inc. at Grace Hopper Conference 2015. On-campus recruiter with at UIUC with Google Inc. (2013-2015) and Bloomberg L.P. (2012).