# Joana M. F. da Trindade

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## RESEARCH INTERESTS

**query optimization, graph data management, temporal graphs, data processing systems**

## EDUCATION

**Massachusetts Institute of Technology (MIT)**  Fall 2016– present
*PhD Candidate in EECS*, CGPA 5.0/5.0
Thesis work on efficient query processing for large graphs.
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 and TU Kaiserslautern**, *B.S. in CS*
Advisors: Prof. Dr. Dieter Rombach and Dipl-Inf. Thorsten Keuler
- 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: VLDB 2025, NeurIPS 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).