

# DEEKSHA ARYA

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**Research keywords:** Software engineering • Human-computer interaction • Software learning resources • Knowledge management • Learning techniques

I am a Computer Science PhD graduate from McGill University. My research focused on how to design software documentation to cater to varied information needs and presentation preferences of programmers, while considering the concerns of documentation contributors. I have previous experience as a software development engineer in the e-commerce industry. I am also a professional Indian classical dancer, and have experience in teaching dance and English to children.

My previous experience has been primarily on understanding how adult students learn, and would like to leverage the insights and research methodologies to inform the development of education technologies. I am also interested in the teaching of core subjects such as Computer Science and related fields at the K-12 levels, and how to improve the learning experience and efficiency by studying childrens' interactions and techniques while learning.

## EDUCATION

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**Ph.D., Computer Science, McGill University, Montreal, Canada**

*Sep 2019 – May 2025*

- Thesis: [Empirical Foundations for Software Documentation Design](#)
- Supervised by Prof. Jin Guo and Prof. Martin Robillard, Software Technology Lab
- Four-phased multi-methods empirical research on understanding how to design learning resources for software technologies to cater to the varied user information needs and presentation preferences, while considering the concerns of creators. Experience with conducting interviews, surveys, diary studies, as well as quantitative data collection, and quantitative and qualitative data analysis.

**M.Sc., Computer Science, McGill University, Montreal, Canada**

*Aug 2017 – Sep 2019*

- Thesis: [Exploring the Correspondence Between Types of Documentation for Application Programming Interfaces](#)
- Supervised by Prof. Jin Guo and Prof. Martin Robillard, Software Technology Lab
- Research on the correspondence of information between API reference documentation and tutorials for Java and Python, to understand how content is replicated and reused across different documentation formats.

**B.E., Information Science, M S Ramaiah Institute of Technology, Bangalore, India**

*Aug 2010 - Jun 2014*

- 1<sup>st</sup> place (group) in All-India Energy Efficiency competition - Blaze 2013 conducted by Schneider Electric
- Cognizant Certified Student for clearing IT Foundation Skills Assessment
- One among 80 students selected for national-level hackathon: JPMorgan Code for Good Challenge 2013

## RELEVANT WORK EXPERIENCE

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**MCGILL UNIVERSITY**

**Teaching Assistant**

*Jan 2018 – Jan 2024*

Responsible for a variety of activities including server setup, assignment creation, conducting activities, mentoring project work, grading, and conducting review sessions and acting as a substitute for classes for the following courses:

- Introduction to C++ (Jan 2018-Jun 2018)
- Computers in Engineering (Aug 2018-Dec 2018)
- Software Design (6 terms between Jan 2019-Jun 2023)
- Building Intelligent Software Systems (3 terms between Aug 2021-Jun 2024)
- Software Privacy (Jan 2024-Jun 2024)

**INFIBEAM.COM (NSI INFINIUM GLOBAL PVT. LTD)**

**Software Developer**

*Jun 2014 – Jul 2017*

- Automated production environment setup for new servers in the system using Ansible and Docker

- Implemented server log consolidation across multiple servers using Elasticsearch, Logstash and Kibana
- Expanded store-hosting software platform BuildABazaar (BaB) to allow storeowner profiles and private storefronts, including through mobile APIs
- Automated the generation, monitoring and validation of monthly bills generated BaB storeowners

INFIBEAM.COM (NSI INFINIUM GLOBAL PVT. LTD)

*Intern*

Oct 2013 - May 2014

- Developed an affiliate management system to track and reward affiliates to the BaB platform

ARIEM TECHNOLOGIES PVT. LTD.

*Summer Intern*

Jun 2013 - Aug 2013

- Implemented an internal user management system

## RELEVANT PUBLICATIONS

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Deeksha M. Arya, Jin L.C. Guo, Martin P. Robillard, [How Programmers Interact with Multimodal Software Documentation](#), *International Conference on Cooperative and Human Aspects of Software Engineering*, 2025

Deeksha M. Arya, Jin L.C. Guo, Martin P. Robillard, [The Software Documentor Mindset](#), *A rXiv Preprint*, 2024

Deeksha M. Arya, Jin L.C. Guo, Martin P. Robillard, [Why People Contribute Software Documentation](#), *International Conference on Cooperative and Human Aspects of Software Engineering*, 2024

Martin P. Robillard, Deeksha M. Arya, Neil A. Ernst, Jin L.C. Guo, Maxime Lamothe, Mathieu Nassif, Nicole Novielli, Alexander Serebrenik, Igor Steinmacher, and Klaas-Jan Stol, [Communicating Study Design Trade-offs in Software Engineering](#), *Transactions on Software Engineering and Methodology*, 2024

Deeksha M. Arya, Jin L.C. Guo, Martin P. Robillard, [Properties and Styles of Software Technology Tutorials](#), *Transactions on Software Engineering*, 2023

Deeksha M. Arya, Jin L.C. Guo, Martin P. Robillard, [How Programmers Find Online Learning Resources](#), *Empirical Software Engineering*, 2022

Deeksha M. Arya, Mathieu Nassif, Martin P. Robillard, [A Data-Centric Study of Software Tutorial Design](#), *IEEE Software*, 2021

Deeksha M. Arya, Jin L.C. Guo, Martin P. Robillard, [Information Correspondence between Types of Documentation for APIs](#), *Empirical Software Engineering*, 2020

Alexander Nicholson, Deeksha Arya, Jin L.C. Guo, [Traceability Network Analysis: A Case Study of Links In Issue Tracking Systems](#), *Artificial Intelligence and Requirements Engineering Workshop*, 2020

Wenting Wang, Deeksha Arya, Nicole Novielli, Jinghui Cheng, Jin L.C. Guo, [ArguLens: Anatomy of Community Opinions On Usability Issues Using Argumentation Models](#), *Conference on Human Factors in Computing*, 2020

Deeksha Arya, Wenting Wang, Jin L.C. Guo, Jinghui Cheng, [Analysis and Detection of Information Types of Open Source Software Issue Discussions](#), *International Conference on Software Engineering*, 2019

## RESEARCH SERVICE

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*Member of Program Committee:*

- International Conference on Evaluation and Assessment in Software Engineering (EASE) 2024

- Reproducibility Studies and Negative Results (RENE) Track at International Conference on Software Analysis, Evolution and Reengineering (SANER) 2024

*Reviewer:*

- Conference on Human Factors in Computing Systems (CHI) 2024
- Empirical Software Engineering (EMSE) 2024
- Symposium on Visual Languages and Human Centric Computing (VL/HCC) 2024
- Transactions on Software Engineering (TSE) 2023
- International Conference on Software Engineering (ICSE) 2022

*Subreviewer:*

- International Conference on Software Engineering (ICSE) 2022, 2024
- International Conference on the Foundations of Software Engineering (FSE) 2021

## TECHNICAL SKILLS

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- **Programming Languages:** C/C++, Java, Python, R, Ruby, HTML/Jade/HTML5, Javascript
- **AI Tools:** Machine Learning, Deep Learning, Natural Language Processing
- **Automation Tools:** Ansible, Docker
- **Database:** Oracle MySQL, MongoDB, LDAP
- **Search Engines:** Solr, Elasticsearch-Logstash-Kibana
- **Analytics:** R, Python, Google Analytics

## CO-CURRICULAR

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- Co-founder TowardsAGood (2014-2017) – a monthly social volunteering initiative to support causes including Help the Homeless campaign, teaching English and Dance to destitute children, organizing Sign Language workshops
- Learning and performing Bharatanatyam Classical Dance form for over 25 years
  - Awarded Chiguru Award by Bharathiya Vidya Kendra, Bangalore
  - Felicitated by Lions Club – Sundar Nagar
  - Passed Junior and Senior level certificate exams conducted by Karnataka State Secondary Education Board
  - Performed in over 100 programs in India, United States and Canada
- Learning and Performing of Mohiniattam Classical Dance form for over 15 years
- Knows English, Hindi, Kannada and basic French