

DEEKSHA ARYA

Webpage: <https://deekshaarya4.github.io/>

Email: deeksha.arya@mail.mcgill.ca

Google Scholar: [Deeksha M. Arya](#)

LinkedIn: [Deeksha Arya](#)

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

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 am interested in studying how people teach themselves software programming, and how we can support self-learners in ensuring the material is accurate and catered to their particular learning context. I am curious about how advanced technology like generative artificial intelligence models can be leveraged to design accessible learning material about Computer Science concepts for under-resourced learning environments. Through my research, I would like to support students with access to limited teaching and financial resources, so as to equip them for job opportunities that can help alleviate their family's low-income economic status.

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.

EDUCATION

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

Sep 2019 – Oct 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

- 1st 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

MCGILL UNIVERSITY

Research Mentor

Mentored three undergraduate students who worked on projects related to my research. Mentoring responsibilities included leading project implementation ideas, conducting weekly meetings to follow progress, reviewing code and providing feedback, and being available and approachable for any discussions.

- **Development of Dynamic Documentation Tool** (with Shushi Huang) May 2024 – Aug 2024
Development of *multimodal software tutorials* that presented the same information about programming topics through different modalities or presentation formats, and the user survey to evaluate the tutorials.
- **Exploration of Dynamic Documentation Design** (with Vivian Li) Jan 2024 – May 2024
Design and initial prototypes of software documentation that can cater to different presentation needs and preferences of users. Resulted in the proposal of *multimodal software documentation*.
- **Search Result Visual Summarizer** (with Kristen Peng) Aug 2021 – Dec 2021
Development of a browser extension to graphically summarize the contents of a search result page based on the type of text and code examples it contained.

MCGILL UNIVERSITY**Teaching Assistant**

Jan 2018 – Jun 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): **Computer Science Teaching Assistant Awardee** for Jan-Jun 2023
- Building Intelligent Software Systems (3 terms between Aug 2021-Dec 2023)
- 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

PUBLICATIONS

Martin P. Robillard, Linh V. Nguyen, **Deeksha Arya**, Jin L.C. Guo, [How Users Consider Web Tracking When Seeking Health Information Online](#), *ArXiv Preprint*, 2026

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

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

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

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

Deeksha M. Arya, Jin L.C. Guo, Martin P. Robillard, [How Programmers Find Online Learning Resources](#), *Empirical Software Engineering (EMSE)*, 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 (EMSE)*, 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 (AIRE)*, 2020

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

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

RESEARCH SERVICE

Member of Program Committee:

- Reproducibility Studies and Negative Results (RENE) Track at International Conference on Software Analysis, Evolution and Reengineering (SANER) 2026
- Reproducibility Studies and Negative Results (RENE) Track at International Conference on Software Analysis, Evolution and Reengineering (SANER) 2025
- International Conference on Evaluation and Assessment in Software Engineering (EASE) 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

- **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

- Co-founder TowardsAGood (2014-2017) – a monthly social volunteering initiative to support causes including Help the Homeless campaign, teaching English and Dance to underprivileged children, organizing Indian Sign Language workshops
- Learning and performing Bharatanatyam and Mohiniattam Classical Dance forms for over 20 years
- Knows English, Hindi, Kannada, and basic French