

Gouri Ginde Deshpande

Curriculum Vitae

Assistant Professor
Dept. of Electrical and Software Engineering,
University of Calgary, Canada

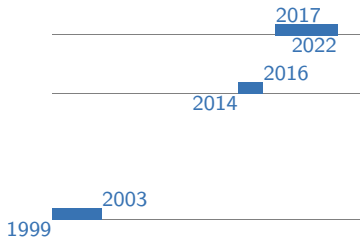
✉ gouri.deshpande@ucalgary.ca

📄 <http://pages.cpsc.ucalgary.ca/~gouri.deshpande>

🌐 MaQuest

✉ gouri.ginde@gmail.com

Educational Qualification

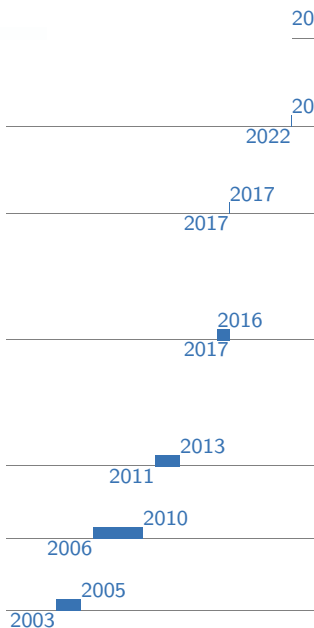


Ph.D, Computer Science, University of Calgary, Canada : GPA: 4.0.

Master of Technology (MTech), Computer Science and Engineering, PESIT Bangalore South Campus, Visweswaraiah Technological University (VTU, Belgaum), Karnataka, India: 84%.

Bachelor of Engineering (BE), Computer Science and Engineering, Gogte Institute of Technology, VTU, Belgaum, Karnataka, India: 73%.

Professional Experience



2022 Assistant Professor, Department of Electrical and Software Engineering, University of Calgary, Calgary.

2022 Postdoctoral scholar, Department of Radiology, Cumming School of Medicine, University of Calgary, Calgary.

2017 Guest lecturer, Taught Data structures and C programming to MSc students of the Library and Information Science, Department of Documentation Research and Training Center (DRTC), Indian Statistical Institute, Bangalore.

2017 Graduate Research Associate, Center for Applied Mathematical Modeling and Simulation (CAMMS), Department of Computer Science and Engineering, PESIT Bangalore South Campus, Bangalore.

2013 Sr. Systems Engineer, Hewlett Packard (HP) Labs, Bangalore.

2010 Systems Engineer, HP Enterprise, Bangalore.

2005 Software Engineer, HP Enterprise, Bangalore.

Skills

Key skills Scientific research, Data Analysis, Leadership & Training, Project Management, Team incubation, Predictive modelling and analytics.

Programming Python, C, C++, Java, MATLAB, Java script, \LaTeX

Big Data stack Neo4j Graph database, MongoDB, Apache Hadoop, Apache Spark, MapReduce, AWS, Linux

Packages Pandas, SciKit-Learn, Numpy, Gensim, Scipy, NLTK, BeautifulSoup, Matplotlib

Tools Jupyter, Google Colab, Tableau, Visual Studio, Eclipse, GitHub, GDB, Ladebug

Research work

Research Interests Software Engineering, Data Analytics, Machine Learning, Big Data Analytics, Scientometric Analysis, Data Modelling

PhD Thesis

2017
2022

Requirements Dependency Extraction: Advanced Machine Learning Approaches and their ROI Analysis.

Advisor Dr Guenther Ruhe

Description In this thesis, I addressed the challenges of Requirements Dependency Extraction (RDE) automation using various advanced machine learning approaches. These challenges were synthesized from our three-pronged approach to problem identification, namely, 1) Literature analysis, 2) State-of-the-practice survey with the practitioners, and 3) Preliminary study for RDE automation using a public dataset. The proposed solutions facilitated different types of learning, depending on the problem's configuration. Essentially, the textual content was explored to infer underlying dependency information based on NLP and utilized advanced ML techniques such as Weakly Supervised Learning, Active Learning, Transfer Learning and DL language model: BERT (Bidirectional Encoder Representations from Transformers) as its various components for automating dependency extraction. A novel ROI modeling mechanism to compute the ROI of ML algorithms was proposed to present a clear picture of trade-offs between cost and benefits. Such ROI analysis could provide additional guidance on which technique fits best in what context.

MTech Thesis

2015
2016

SciBase - Mining massive databases for scholastic indices, Measure and quantify 'internationality' of peer-reviewed Journals
Website: <http://sahascibase.org>.

Advisor Dr Snehanshu Saha

Platform: Ubuntu, Apache Hadoop, Apache Spark

Languages: Python, Scala

Database: Neo4j graph database

Role: Team Lead **Team Size:** 13

Description There exists no metric to rank journals based on the extent or scale of internationality. Measuring internationality is qualitative, vague and open to interpretation, and limited by vested interests. This project envisions defining internationality as a metric by setting quantitative benchmarks and defining quantifying new predictor variables. We have tried to evaluate, rank and categorize journals based on internationality. The required data has been scraped from multiple web resources through algorithms. This raw data is fed to Neo4j (graph-based) database for visual analytics. Further, the raw data is cleansed, and then the internationality is modeled as an influence score. Singular Value Decomposition on a massive matrix with rows as articles and columns as various dimensions has been used to find the high-impact papers for a particular domain.

Graduate Research Project (Internship @ ISI Bangalore)

2015 2016

Mining massive databases for scholastic indices, Measure and quantify 'internationality' of peer-reviewed Journals..

Adviser Professor B.S Daya Sagar, Indian Statistical Institute (ISI), Bangalore and Dr. Snehanshu Saha, PESIT Bangalore South Campus

Description Data mining from Google Scholar was the critical part of this project. Various methodical web-scraping algorithms, which were developed in research work and implemented in python language, have been used to acquire multiple parameters. These parameters were then used to compute the necessary input values for computation of a new metric: 'internationality' of the Journals using the Cobb-Douglas production function model. Google Scholar (GS) has been used as the data source for web scraping because GS is the most comprehensive data repository available for free.

Work Experience

2016 2017

Graduate Research Associate, CAMMS Lab, Department of Computer Science and Engineering, PESIT Bangalore South Campus, Bangalore.

Project SciBase

Platform, Technologies: Ubuntu, AWS, Neo4j database, Apache Hadoop, Apache Spark, Machine Learning, Data Analytics, Graph Theory

Languages and tools: Python, MATLAB

Python Libraries: scikit-learn, NumPy, networkX, gensim, scipy

Role: Project Lead (Research team) **Team Size:** 12

Description Scibase is a repository and the first complete Web-Dictionary of Scholastic Information System. It is a study of Applied Machine Learning and Data analytics on the massive scale scholastic articles data, which is gathered using web scraping methodologies from various online repositories such as IEEE, ACM etc.

Responsibilities

- Data extraction, data analytics, defining data visualization prototypes, development of various data processing algorithms based on machine learning algorithms, and their implementation.
- Managing work assignments and other project activities. AWS deployment and monitoring etc.

2010 2013

Sr. Systems Engineer , HP Labs, Bangalore.

Project 1 Similar Document Search algorithm implementation on Hadoop (Proof of concept)

Platform: Ubuntu, Apache Hadoop

Languages: Java

Role: Individual Contributor

Description Similar Document search is a search interaction tool where the user searches with a reference document, and the system learn from the user inputs over some time to “push” relevant and new content without additional user interaction. By caching documents received from a user over time, a user profile is built. The profile is then used to provide recommendations to the user. To minimize the computation time and to increase the processing speed of the document search, this was implemented in Hadoop using Map-Reduce framework

a) Easy RFP: We incorporated a similar document search model into a tool called "EasyRFP" to simplify the process of responding to Request-For-Proposal(RFP). It is a text processing-based tool that simplifies responding to RFPs.

b) Web Data gathering through Nutch crawling: To create a network model for all the researchers across the hp world who collaborated and published papers, we were in the initial phase of implementation of an algorithm using Neo4j by extracting the authors' name through the crawled data from the hp publication sites. (Proof of concept).

Responsibilities Work involved research and development of Hadoop MapReduce programming.

- Single-handedly implemented the stand alone application called Similar document search algorithm onto a multiple node Hadoop cluster.
- Did performance analysis and statistics analysis of implementation.
- Research and development of the proof of concept for network model of researchers explained above.

Project 2 Web Tuner (Mobile application)

Platform: WebOS

Languages: Java, JavaScript

Role: Individual Contributor

Description Web Tuner is a Palm WebOS application that aims to allow web browsing using the radio tuning metaphor. Application aims at making the whole of browsing experience easier on the mobile.

Responsibilities Work involved research and development of various mobile and desktop applications.

- Analyzed, researched and implemented Location based search (GPS location) module
- Analyzed, researched and implemented the Web history based search module
- Improvised the performance of the application. Aligned the product to match the global appeal and standards of the mobile application

2005  2010

Systems Engineer, *HP Global Delivery Information Center (GDIC)*.

Project Enterprise Risk Management System
(Formerly known as Fraud Management System)

Platform: Linux and Windows

Languages: C++/VC++

Role: Team member and lead to a special task group **Team Size:** 10

Description This is an application which detects and curbs potential billing frauds, in turn protects the subscriber from erroneous bills

Responsibilities Work involved research, and development of various mobile and desktop applications.

UI related

- Design and Documentation on UI related enhancement requests.
- Bug Fixing
- Writing test cases, testing and validation
- Patch release management
- Providing customized enhancements kits.

Server related

- Expert in critical and escalated bug fixing
- Specialized in analysis and resolution of issues related to Memory leak, Core dump etc
- Design and Documentation on UI related enhancement requests.
- Writing test cases, testing and validation and Patch release management
- Providing customized customer specific enhancements kits.

Others

- Providing training/Code-walk-through to novice team members on product architecture and module design
- Collecting statistics for the managerial updates.
- Analysis and report making on the internal bug tracking tools.
- Providing improvement suggestions on project related processes

2003 2005

Software Engineer.

Project Information Technology Resource Center (ITRC)

Platform: Linux

Languages: C++

Role: Team member **Team Size:** 9

Description The IT Resource Center is an application where one can get services for ones HP-UX, Linux, MPE/iX, NT, OpenVMS, and Tru64 UNIX servers and workstations

Responsibilities

- Verification, validation and fixing of the bug related to individual contracts.
- Releasing patch to the customer.
- Raising the Change requests and providing the fix.

Teaching Experience

Certified from SoTL Advancing Graduate Education in STEM

2019

Introduction to the principles and practices of university teaching and learning in a STEM context (SCIE 601), *Weekly workshops to learn evidence-based teaching STEM teaching*, Fall-2019.

2020

Teaching practicum: A teaching partnership with a faculty mentor in my field of study, which provided an authentic opportunity to foster evidence-based teaching practice (SCIE 603), Fall-2019.

Teaching Assistant

(Dept of Computer Science, University Of Calgary, Canada)

2021

Software Project Management (SENG-511), **Head TA**, Fall-2017, Fall-2018 and Fall-2019, Fall-2020, Fall-2021.

2020

Analytics in Software Project Management (SENG 607), Recipient of TA Excellence award, Winter-2020.

2019

Introduction to Computer Science for Multidisciplinary Studies I (CPSC-217), Python programming Language, Fall-2019.

2019

Programming with Data (DATA-211), Python programming Language, Winter-2019.

2018

Introduction to Programming using Python language (CPSC-231), Winter-2018.

**Guest Lecturer at Indian Statistical Institute (ISI), Bangalore, India
Data structures and C programming.**

2017

Taught Data structures and C programming for 2nd semester M.Sc students of Library and Information science, Documentation Research and Training Center (DRTC) department, ISI Bangalore.

2015

Managing Big Data and Introduction to Apache Hadoop and Map Reduce programming, .

Taught Big data technologies and map-reduce programming to M.S students, Junior and Senior Research Fellows of Documentation Research and Training Center (DRTC) department, ISI Bangalore.

Other Professional Services

Program Committee

- IEEE/ACM International Conference on Software Engineering (ICSE), 2022, Online
- Requirements Engineering: Foundation for Software Quality (REFSQ) Conference, 2020, Italy.
- IEEE Conference on Computer Software and Applications (IEEE COMPSAC) (2018 to present)

Reviewer

- International Conference on Modeling, Machine Learning and Astronomy, Bangalore, India, 2019
- IEEE Conference on Computer Software and Applications (IEEE COMPSAC) (2018, 2019)
- Empirical Software Engineering and Measurement (ESEM 2018)
- 7th International Conference on Advances in Computing, Communications and Informatics (ICACCI) (2018)
- International Conference on Advances in Pattern Recognition (ICAPR) 2017

Organizing Committee/Volunteer

- International Conference on Requirement Engineering, Banff, Canada, 2018
- International Symposium on Big Data Management and Analytics, Calgary, Canada, 2018

- Talks**
- Invited talk on "Applications of NLP and ML in Requirements Dependency Extraction" to 3rd year students of the department of Electrical and Software Engineering, University of Calgary, Canada, 2022
 - Technical talk on "C++ applications in real-world and computational science" to the department of Electrical and Electronics students, Dayanand Sagar College of Engineering, Bangalore, India, 2020
 - Invited as a Distinguished guest for a Technical forum inauguration, where I delivered the keynote on "*Introduction to Big Data and Hadoop*", Dr. Ambedkar Institute of Technology, Dept of Master of Computer Applications, Bangalore, India, 2016

- Others**
- Presented poster: "User Feedback from Tweets vs App Store Reviews" at the Women in DataScience'18, University of Calgary
 - Presented poster: "How Much Data Analytics is Enough? The ROI of Machine Learning Classification" at the Women in Machine Learning co-located with NeuroIPS'21

Associate Fellow Journal of Scientometric Research, a Scopus indexed journal, since 2018

- Mentor**
- Mentored about 12 undergraduate students from Department of Computer Science, PES School of Engineering, Bangalore, India while working as a Research associate, 2016-17
 - Mentored Master's summer intern student from Department of Electrical Engineering, University of Calgary, Canada. 2019
 - Mentoring an undergraduate student from Department of Computer Science, University of Calgary, Canada 2019

Publications

(Note: Gouri Ginde is my maiden name)

Summary: 10 Conference, 4 Journal, 1 Book Chapter, #citations: 127

2021

[J4] Gouri Deshpande, Guenther Ruhe & Chad Saunders, How Much Data Analytics is Enough? The ROI of Machine Learning Classification and its Application to Requirements Dependency Classification, Springer Nature Journal for Computer Science, 2021 (**Submitted**).

2021

[C10] Gouri Deshpande, Behnaz Sheikhi, Saipreetha Chakka, Dylan Valentin Lachou Zotegouon, Navid Masahati, Guenther Ruhe, Is BERT the New Silver Bullet? - An Empirical Investigation of Requirements Dependency Classification, 8th International Workshop on Artificial Intelligence for Requirements Engineering 2021, Canada.

2020

[C9] Gouri Deshpande, Guenther Ruhe, Beyond Accuracy: ROI-driven Data Analytics of Empirical Data, 13th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM), 2020 (**Best paper**).

2020

[C8] **Gouri Deshpande**, *Quim motger, Cristina Palomares, Ikagarjot Kamra, Xavier Franch, Guenther Ruhe and Jason Ho*, Requirements Dependency Extraction by Integrating Active Learning with Ontology-Based Retrieval, IEEE 27th International Requirements Engineering Conference (RE) 2019.

2019

[C7] *Ralph Samer, Alexander Felfernig, Martin Stettinger, Muesluem Atas, Guenther Ruhe and*, **Gouri Deshpande**, New Approaches to the Identification of Dependencies between Requirements, International Conference on Tools with Artificial Intelligence(ICTAI), Portland, 2019.

2019

[C6] **Gouri Deshpande**, *Chahal Arora, Guether Ruhe*, Data-driven Elicitation and Optimization of Dependencies between Requirements, IEEE 29th International Requirements Engineering Conference (RE) 2019, Jeju, South Korea.

2019

[C5] **Gouri Deshpande**, SReYantra: Automated Software Requirement Interdependencies Elicitation, Analysis and Learning, 41st International Conference on Software Engineering 2019, Montreal, Canada.

2019

[J3] *Archana Mathur, Snehanshu Saha, Saibal Kar, Gouri Deshpande, and A.Sinha*, SES-RREF: The Machine Learning Approach to Credible Metrics of Scholastic Evidence via Recursive Referencing, Journal of Scientometric Research, 2019.

2018

[C4] **Gouri Ginde**, *Jon Rokne*, User Feedback from Tweets vs App Store Reviews: An Exploratory Study of Frequency, Timing and Content, , 5th International Workshop on Artificial Intelligence for Requirements Engineering 2018, Canada.

2018

[J2] **Gouri Ginde**, *Snehanshu Saha, Archana Mathur, Harsha Vamsi*, Use of NoSQL database and visualization techniques to analyze massive scholarly article data from journals, Journal of Scientometric Research (Wolter-Kluwer).

2017

[B1] **Gouri Ginde**, *Rahul Aedula, Snehanshu Saha, Sudeepa Roy Dey, Gambhire Swati Sampatrao, Archana Mathur, BS Daya Sagar*, Big Data acquisition, preparation and analysis using Apache foundation frameworks, for the book, "Bigdata Analytics: Tools, Technology for Effective Planning" published by CRC Press/Taylor & Francis Group (**Book Chapter**).

2016

[C3] **Gouri Ginde**, Visualisation of massive data from scholarly Article and Journal Database: A Novel Scheme, International Conference on Recent Innovative Trends in Computer Science and Applications (ICRITCSA 2016), pages 1-5, October 2016, arXiv:1611.01152.

2016

[J1] Gouri Ginde, *Snehanshu Saha, Archana Mathur, Sukrit Venkatagiri, Sujith Vadakkepat, Anand Narasimhamurthy, B.S. Daya Sagar*, ScientoBASE: A Framework and Model for Computing Scholastic Indicators of non-local influence of Journals via Native Data Acquisition algorithms, *Journal Scientometrics*, pages 1-51, June 2016.

2015

[C2] Gouri Ginde, *Snehanshu Saha, Chitra Balasubramaniam, Harsha R.S, Archana Mathur, B.S. Daya Sagar, Anand M N*, Mining massive databases for computation of scholastic indices - Model and Quantify internationality and influence diffusion of peer-reviewed journals, *Proceedings of the Fourth National Conference of Institute of Scientometrics, SloT*, August 2015 (**Best Paper**).

2015

[C1] Snehanshu Saha, Avantika Dwivedi, Nandita Dwivedi Gouri Ginde, Archana Mathur, JIMI:Journal Internationality Modeling Index-An Analytical Investigation, *Proceedings of the Fourth National Conference of Institute of Scientometrics, SloT*, August 2015.

Awards and Achievements

- Cumming School of Medicine Postdoctoral scholarship (CSM, UCalgary), 2022-2024
- Firmex × STEMHub Foundation Scholarship, STEMHub Foundation, 2021
- Elizabeth Cannon Graduate Scholarship in Entrepreneurial Thinking, UofCalgary, 2021
- Grace Hopper Celebration Student Scholarship, 2021
- Lockhart Family Graduate Scholarship in Computer Science, UofCalgary, 2021
- Faculty of Graduate Studies Doctoral Scholarship, UofCalgary (**Returned**), 2021
- Alberta Innovates Graduate Student Scholarships for Data-Enabled Innovation competitive award, Gov of Alberta and Alberta Innovates, 2020
- Computer Science Departmental Research Award (RA), UofCalgary (**Returned**) 2020.
- Best Emerging Result and Vision Paper award in the ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM), 2020.
- Computer Science Teaching Assistant (TA) Excellence award, Winter 2020 in the graduate-level category, UofCalgary.
- Computer Science Departmental Research Award (RA), UofCalgary, 2019.
- Eyes High International Doctoral Scholarship, UofCalgary, 2018.
- Faculty of Graduate Studies Doctoral Scholarship, UofCalgary, 2018.
- Best Outgoing Student of the year in MTech (CSE) in recognition of academic excellence, 2016.
- Best paper award 2015 in the 4th National Conference on "Scientometrics and The Internet of Things".
- Scholarship for MTech from Ministry of Human Resources Development (MHRD), Government of India, 2014-2016.
- Stood amongst top two in MTech (CSE), 2014-2016.
- Excellence Award @ Hewlett Packard GDIC for Fraud Management System project (2006 & 2008).

Volunteer work

- (2020-2021) **Member** of the Faculty of Science Innovation committee, to develop innovation-focused events/ activities that are aligned with the Faculty's strategic direction.
- (2019-2020) **Organizing (Co)Chair** of SciTech Challenge on behalf of Let's talk science. This national charitable organization provides evidence-based STEM programs at no cost for Canadian youth and educators (cancelled due to pandemic).
- (2019-2020) **Member** of the Graduate Student Association Awards committee, which decides the awards such as Bursary, Professional development grant, Excellence awards and Graduates representative Council Initiative award for the year 2019-2020.
- (2018) **Judge** at the Calgary Youth Science Fair. Provided oral and written feedback to science projects of elementary school students. Nearly 1,000 students showcased their science fair projects at this Canada's largest regional fair. This involved 16hrs efforts.
- (2018) **Representative of Woman student in STEM** from the University of Calgary to talk science with the public, an event held at Calgary Zoo. Soapbox Science is a novel public outreach platform for promoting women scientists and facilitating community awareness and engagement in science. This involved 24hrs efforts (training, meetings and event)
- (2018) **Member** of the organizing committee for the 39th Requirement Engineering conference held at Banff, Calgary in August 2018. I coordinated with the attendees (over 250) and organizers to ensure smooth operations during this top-tier conference.
- (2018) **Vice President Social** of the Computer Science Graduate Student Association (CSGS). My responsibilities included representing CSGS at Graduate Student Association and organizing social events related to various scholarly and recreational events for students and staff. This involved 40hrs efforts, including meetings, organizing weekly and monthly events, lunches etc.
- (2016-2017) **Co-organizer** of the cultural events at the Amoda Valmark apartment housing community, Bangalore, India. This involved arranging, decorating and coordinating activities.
- (2005) **Individual contributor** to help Samarthanam Trust, a non-profit organization in Bangalore, India, in the year 2005. Samarthanam provides vocational rehabilitation to visually and physically challenged people to generate a digital library. I lent my voice and acted as a reader for the text-to-voice conversion. This work which required 20hrs of effort, was very well received and appreciated by the organization.
- (1995) **Scribe** to a visually impaired 10th-grade student at Maheshwari School for The Blind - India in the year 1996. As a 9th grader, I volunteered and represented my school to assist the 10th grader of this school in writing board exams of all subjects. This cause involved 50hrs efforts over 6 months. This work benefited the student and helped me better understand and appreciate nature's gifts.