

Rijul Saini

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LANGUAGES

English (native), French (beginner), Hindi (mother tongue), and Sanskrit (beginner)

Skills

Research Interests and Key skills: Scientific Research, Data Analysis, Data Modelling and Visualization using Neo4j Graphs, Predictive Analytics using Machine Learning, Natural Language Processing using Language Models, Model-Driven Requirements Engineering using UML, Leadership and Training, Project Management, and Team Incubation

Programming: SQL, Python, Core Java, C++, HTML, CSS, JavaScript, and SAP ABAP

Tools, Frameworks, and OS: GIT, Spring Boot, REST APIs, React JS, Travis CI, Heroku, Django, Docker, SAP-HR, Microsoft Office, Linux, and Windows

EDUCATION

McGill University, Montréal, Canada

Sep 2017 – Present

Doctor of Philosophy - Thesis (Software Engineering), GPA: 4/4

- Relevant coursework: Natural Language Processing and Machine Learning Techniques for Software Engineering, Applied Machine Learning, Model-Driven Engineering, Advanced Language Software Engineering, Software Analytics, and Model-Based System Design and Simulation

Recipient of Masters to Ph.D. Fast-Track Award - 2018, McGill Engineering Doctoral Award (MEDA) – 2019 to 2021, and Graduate Research Enhancement and Travel Award (GREAT) - 2020

Guru Gobind Singh Indraprastha University, New Delhi, India

Jul 2009 – May 2013

Bachelor of Technology (Computer Science & Engineering), Percentage: 76.39%

- Relevant coursework: Algorithm Analysis and Design, Software Engineering, Object-Oriented Programming, Computer Networks, and Database Management Systems

WORK EXPERIENCE

Student Intern - Software Development and Data Science

Jan 2021 - Present

Bombardier Aerospace, Montréal, Canada

- Developing an internal web-based tool to optimize the conceptual design of aircraft.
- Using technologies such as Flask, React JS, Python, GIT, and Microsoft Azure DevOps.
- Building an automated pipeline to collect heterogeneous data and facilitate predictive analytics using Machine Learning for Computational Fluid Dynamics (CFD).

Secured Second Place in the Case Competition “Bombardier Leaders of Tomorrow” – 2021

Teaching Assistant – Software Engineering

Sep 2018 – Apr 2021

McGill University, Montréal, Canada

- Conducted tutorials weekly at McGill University for the courses – Introduction to Software Engineering, Software Requirements Engineering, and Model-Based Programming.

Student Developer – Software Engineering

Summer 2019, 2020

Google Summer of Code, Eclipse Foundation

- Worked with the Red Hat team to bring the co-editing support in Eclipse Che 7.
- Developed a VS Code extension to enable conflict-free collaborative development and modelling.

Software Engineering Analyst – SAP HCM

Dec 2013 – May 2017

Accenture Solutions Private Limited, Pune, India

- Provided consultancy in the module of SAP Human Resources to a multinational energy conglomerate.
- Helped Portal and Finance consultants to solve the critical issues using the ABAP debugging technique.
- Developed programs to automate the extraction and posting of Interface files - **recognized with the Outperform Award for the same.**

ACADEMIC PROJECTS

Ph.D. Thesis – Recommendation System for Domain Modelling **Jan 2019 - Present**

Technologies Used: Natural Language Processing, Machine Learning, Django, Python, GOJS

- This research aims to build a recommendation system for assisting practitioners such as requirements engineers in quickly prototyping domain models for requirements expressed in natural language using Natural Language Processing and Machine Learning techniques.
- The system constructs queryable trace models in the form of knowledge graphs automatically and facilitates system-user interactions for adapting the extracted domain models based on users' preferences.

Multi-User Collaborative Web Tool for Requirements Modeling

Sep 2017 – Dec 2018

Technologies Used: Eclipse Che, Docker, Theia, Typescript, Xtext, Sproppy

- The aim of this research is to build a web-based tool to facilitate conflict-free collaborative modelling.
- The tool helps in modelling requirements collaboratively through Textual User Requirement Notation.

Selected International Publications

Paper Title: Automated Traceability for Domain Modelling Decisions Empowered by Artificial Intelligence
29th IEEE International Requirements Engineering Conference (RE), 2021, Research Paper (**acceptance rate: 29%**)

Paper Title: DoMoBOT: A Bot for Automated and Interactive Domain Modelling
ACM/IEEE 2nd Artificial Intelligence and Model-driven Engineering Workshop - MDE Intelligence, 2020

Paper Title: Towards Queryable and Traceable Domain Models
28th IEEE International Requirements Engineering Conference (RE) - RE@NEXT! 2020 (**acceptance rate: 31%**)

Paper Title: Hitchhiker's Guide to Model-Driven Engineering for Data-Centric Systems
IEEE Software, IEEE, 2020

Paper Title: A Neural Network Based Approach to Domain Modelling Relationships and Patterns Recognition
28th IEEE International Requirements Engineering Conference (RE) - MoDRE Workshop, 2020

EXTRA-CURRICULAR ACTIVITIES

International Buddy Volunteer

May 2020 – Present

International Student Services, McGill University, Canada

- Helping international students in making an easy transition to McGill and Montréal.

Judge Volunteer

Summer 2019, 2020

Summer Undergraduate Research in Engineering, McGill University, Canada

- Evaluated the undergraduate research projects conducted by students with faculty of engineering.

Peer Mentor

Aug 2018 – Apr 2019

MasterCard Foundation Scholars Program, McGill University, Canada

- Provided guidance on academics and life at McGill in a manner that eases the scholars' transition to the University and facilitates their success.

Location Volunteer Lead

Apr 2014 – Mar 2017

Accenture's Corporate Citizenship, India

- Organized more than 20 national volunteering events at Accenture partner NGOs from 2016 to 2017.
- Volunteered for more than 400 hours by conducting Skills to Succeed (S2S) sessions.
- Recognized with Accenture Celebrates Excellence (ACE) award.

Other Roles and Responsibilities

- Program committee member of Model-Driven Engineering (MDE) Intelligence Workshop at MODELS'21 and reviewer of SoSyM (theme section: AI-enhanced MDE) journal papers in 2021.
- Student volunteer at the flagship conferences – ICSE (2019), RE (2021), and MODELS (2019, 2020, 2021).
- Volunteered at the Mumbai Trailwalker and helped Oxfam India in raising funds in 2014 and 2015.
- Spectator Services Specialist in the XIX Commonwealth Games, Delhi in 2010.

ACTIVITIES AND INTERESTS

- Sports – Playing badminton and soccer.
- Music – Singing and playing flute, guitar, and congo.
- Hobbies – Painting, learning new technologies, writing blogs, developing applications, solving puzzles, doing yoga, and volunteering for social good.