# SHAINA RAZA

(647) 449-2360 · shaina.raza@ryerson.ca · linkedin.com/in/shaina-raza-846263105/

## Introduction

I belong to the Information systems and Recommender systems group at Ryerson University, Toronto, Canada. My research focus in on Data Science, Machine Learning, Deep Learning and Natural Language Processing techniques. I am mostly interested in contextual modeling, user modeling methods and multi-criteria evaluation techniques in recommender systems.

## Education

**PhD** (Candidate), Computer Science, **Ryerson University**, Toronto, ON, 2020 Expected
*Thesis Title*: Enhancing Reader Experience with News Recommender System
A holistic solution to recommend the right types of news (personalized, diversified, contextualized, novel, recent, trendy or a blend) to enhance online readers' experience in a new recommender system. The content and user profiles are represented using multi-faceted features to evaluate the effectiveness of recommendation model. By providing nearly all the possible decision variables to the recommendation engine, it is likely to mimic human behavior in choosing news items. The thesis also sheds light on post-algorithmic effects and users' counter-attitudinal behavior in news domain. By addressing this issue, this work contributes in fake news detection, determine the credibility of users in news domain, addressing the partisan bias from publishers as well as in mitigating unintended biases and polarization in society.

**MS,** Computer Science, University of Central Punjab, Lahore, Pakistan, 2012
*Thesis Title*: Design of a component-based and concurrent software using Type-state Programming Language.

## Experience

**Advisor (part-time), Computer Science**, April 2020 - Till
Summery (https://summery.ai), 2269 Chestnut Street, #129, San Francisco, CA 94123, USA

As a member of the senior Computer & Data Science team, I lead Summery's Machine Learning and NLP activities, with a focus on recommender systems and news domain. I help to create the company's custom databases used in values-based matching, as well as consult on the Net Culture Score, which scores the alignment between an organization and stakeholder values.

**Managing Editor (part-time),** June 2020 - Till
Array, the Journal, 230 Park Avenue, Suite 800, New York, NY 10169, USA

As a member of editorial team, I am responsible for screening, initial assessment and reviewing of submissions.I am also responsible for making recommendations and assigning papers to handling editors, liaising with Publishers and Editors across journals, and developing the Article Transfer Service.

**Chang School Continuing Education Contract Lecturer (CECL)**, May 2019 – July 2019
Computer Science Department, Chang School, Ryerson University, Toronto, ON
*Taught Subject*: **CCPS 506** - Comparative Programming Languages
I have taught groups of 25-30 students (both professional and part-time) major programming paradigms, with emphasis on the functional programming paradigm. I also designed course contents, ensuring content alignment with industry trends and needs, resulting in high levels of student satisfaction indicated on anonymous surveys

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## Experience (cont.)

**Visiting Lecturer**, Sept. 2018 – Dec. 2018
Tiferes High School, 85 Stormont Ave, North York, ON M5N 2C3
*Taught Subject*: **Programming with Python**
- Taught groups of 35-40 students at high school about programming concepts esp. python programming
- Designed lectures and small group work, as well as coordinated weekly programming activities in an organized and efficient manner to ensure effective delivery of course material

**Graduate and Teaching Assistant**, 2016 - Till
Computer Science, Ryerson University, Toronto, ON, 2016-Till
  *Taught Subjects in 2018 - 2020*

| | |
|---|---|
| **ITM 102**: Business Information Systems I | Sept. 2020– Till |
| **COE528**: Object Oriented Analysis Design | Sept. 2019 – April. 2020 |
| **ITM301**: IT Infrastructure | Sept. 2019 – Dec. 2019 |
| **CP842**: Info Retrieval and Web Search | Sept. 2019 – Dec. 2019 |
| **ITM200**: Fundamentals of Programming | Sept. 2019 – Dec. 2019 |
| **ITM 207**: Computer-Enabled Problem-Solving | Jan. 2019 –  Apr. 2020 |
| **CIND719:** Big Data Analytics Tools | May 2018 – April 2019 |
| **CPS109:** Programming - Python | Sept. 2018 – Dec. 2018 |

  *Taught Subjects in 2016 - 2018*:

| | |
|---|---|
| **CIND110:** Big Data Analytics Tools | Jan.2018 – Dec 2018 |
| **CPS125**: Digital Computation and Prog | Jan. 2018 – Apr 2018 |
| **CP842**: Info Retrieval and Web Search | Sept.2017 – Dec 2017 |
| **CPS714**: Software Project Management | Sept.2017 – Dec 2017 |
| **CPS118**: Introductory Prog for Scientists | Sept.2016 – Dec. 2016 |
| **CPS125**: Digital Computation and Prog | Jan.2017 – Apr. 2016 |

- Attended all TAGA (teaching and graduate assistant) training and faculty meetings
- Mentor and advise undergraduate as well as continuing education adult students
- Prepare and Reinforce lessons presented by professors by reviewing material with students
- Perform recordkeeping such as tracking attendance and calculating grades
- Grading assignments, quizzes and exams with timely delivery of results

**Lecturer and Advisor, Computer Science**, 2012 - 2015
Lahore Garrison University (LGU), Sector C, Lahore, Pakistan
*Taught Subject*: Introduction to programming, Programming advances with C/C++/Java, Database systems, Research methods

**IT Lecturer and Developer,** 2011 -2012
CFE Group of Colleges, Garden Town, Lahore, Pakistan
*Taught Subject*: C/C++, Java, SQL, Databases

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**E-Lecturer, Computer Science**, 2006 - 2009
Virtual University of Pakistan, M.A. Jinnah Campus, Defense Road
*Taught Subject*: Computer Programming, Object-oriented programming, databases, operating systems, data structures, software engineering, software project management
- Developed and implemented standard lessons according to university policies
- Creatively integrated lessons to supplement curriculum for computer science subjects;
- Maintained a collaborative learning environment with students of varying backgrounds while building an atmosphere of respect and rapport in virtual environment

**Website Support,** 2016
Zaneen Group of Lighting,  30 Tycos Dr, Toronto, ON M6B 1V9, Phone:(416) 247-9221

## Industrial Experience

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**Project:** Quiz Development, Bill and Melinda Gates Foundation, 2020, June - Till
*Company*: Summery (https://summery.ai/)
*Reports to*: Erin Michelson
- Maintain and update the quiz development, NLP tasks and dictionary built to transform its donor experience with Summery's AI-powered apps
- Tools used: Python, Selenium, Beautiful soup, CURL, Machine learning and Transfer learning techniques.

**Project:** Marine Conservation, 2020, June
*Company*: Summery (https://summery.ai/)
*Reports to*: Erin Michelson
- Build the custom database and match profiles of the users with company' 5 dimensions (integrity, empathy, innovation, disruption, agility) based on activities and assign a profile type to each user.
- Tools used: Python, Selenium, Beautiful soup, CURL, Google Bert and simple k-means.

**Project:** COVID, 2020, April
*Company*: Summery (https://summery.ai/)
*Reports to*: Erin Michelson
- Build a COVID database by pulling the non-profit resources and scoring the text via company' 5 dimensions (integrity, empathy, innovation, disruption, agility), match profile of the users to these 5 dimensions based on their activities and map the donors with non-profit organizations.

**Project:** Interactive News Recommender Systems, 2017 - 2018
*Company*: Collaborative project of Marj Systems and Ryerson University
*Advisor*: Dr. Cherie Ding
- Collaborated with developer interns to implement and test code in parallel for a real-time news recommender system, implemented content-based recommender and collaborative filtering algorithms, tested the project modules for verification and validation and prepared a detailed description of Software Requirements Specification (SRS) for the project
- Techniques used R, Scala, Java, MongoDB, ElasticNet, Docker, Apache Hadoop, Hive, HBase, Spark, NoSQL.

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**Project:** Electronic Medical Record, 2016
*Company*: Collaborative project of MedCurrent Corporation and Ryerson University
*Advisor*: Dr. Cherie Ding

- Built a machine-learning model to predict the course of different diseases associated with patient's symptoms with a team of developers, built a retrieval system on the indication database and expanded the keyword list using term-term similarity and then added similar terms to the existing keywords list to predict all possible words that the physician might use to explain the patient condition
- Applied various ranking algorithms and used tools : Lucene SOLR, Apache Nutch, Java, Python

## Publications

1. Raza, Shaina and Chen Ding. "**Regularized Latent Factor Model to Trade-off between Accuracy and Diversity in a News Recommender System.**", In *IEEE International Conference on Big Data,* 2020
2. Raza, Shaina, and Chen Ding. **"A survey on news recommender system--Dealing with timeliness, dynamic user interest and content quality, and effects of recommendation on news readers."** *arXiv preprint arXiv:2009.04964* (2020).
3. Raza, Shaina and Chen Ding. "**News Recommender System Considering Temporal Dynamics and News Taxonomy.**", In *IEEE International Conference on Big Data,* 2019
4. Raza, Shaina, and Chen Ding. "**Progress in context-aware recommender systems—An overview.**", *Computer Science Review* 31, 2019: 84-97. https://doi.org/10.1016/j.cosrev.2019.01.001
5. Raza, Shaina, and Syed Raza Bashir. **"Protecting the content through learning object metadata."**" *Imam Journal of Applied Sciences*, no. 1, 2016: 3.
6. Raza, Shaina, et al. **"Design And Development Of Context-Aware Recommendation Strategy For E-Learning.",** *VFAST Transactions on Software Engineering*, 2015: 1-11.
7. Qamar, Shaina & Syed Raza. "**Towards the Recommendation of Highly Relevant Learning Objects to the Learners**.", *VAWKUM Transactions on Computer Sciences*, 2015: 19-23.

*Papers under review*
1. Raza, Shaina and Chen Ding. "Deep Dynamic Neural Network to trade-off between Accuracy and Diversity in a News Recommender System" under submission with DASFAA 2021**.**

## Presentations

- **Science talk ,** "Ai for Good", **Soapbox Science** Toronto 2020
- **Research Talk,** "News Recommender System and contextual features [link]"- March 2020
- **Paper Presentation** "News recommender systems considering temporal dynamics and news taxonomy" in Los Angeles, USA, IEEE BigData2019 Conference – Dec 2019
- **Research Talk** "News recommender systems considering temporal dynamics and news taxonomy" in Ryerson University – Dec 2019
- **Poster Presentation**: "**Learning Objects Recommendations**"
  Ryerson learning & teaching conference, May 16, 2019.
- **Paper Presentation**: "**Assessing Students' Pedagogical Level Through Metadata**"
  Ryerson learning & teaching conference, May 17, 2018.
- **Presentation at Canadian International Journal of Social Science and Education**
  Canadian International Journal of Social Science and Education in UoFT , July, 2015

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## Certificates

- **ITIL-certified**
- Protecting Human Research Participants – **PHRP certified**

## Professional Affiliations

Member, **Institute of Electrical and Electronics Engineers (IEEE)**, 2017-Present
Member, **Association for Computing Machinery (ACM),** 2020-Present

## Awards and Honors

Ontario Graduate Scholarship, Government of Ontario. $15,000, 2020 - 2021
Ontario Graduate Scholarship, Government of Ontario. $15,000, 2019 – 2020
Ryerson Graduate Fellowship (RGF), Faculty of Graduate Studies, Ryerson University, 2016-2019.
Ryerson Entrance Scholarship (tuitions), Faculty of Graduate Studies, Ryerson University, 2016-2019.
Research Grant from Natural Science and Engineering Research Council of Canada 2016-2020
Conference Travel Grant, IEEE Big Data 2019

## Volunteer Experience

**Speaker in STEM,** 2020 – till: SoapboxScience (http://soapboxscience.org/)
**Reviewer,** 2019-till: IEEE Transactions, Springer, Elsevier
**Mentor, Tri-Mentoring,** 2018 - till : Ryerson University
**Communication Officer**, 2015-2016: William G Miller Public, Toronto
**IT Trainer**, 2015: Heritage Development Training Center, Toronto

## Skills

*Techniques:* Machine Learning, Statistics, Deep Learning/Neural Networks; Data Analytics, Predictive Modeling, Big Data Queries and Interpretation, Data Mining and Visualization Tools, Research, Reports and Forecasts, Data Visualization, Git and Version Control, APIs, Scrapping, Google Suite, Curriculum Development, Knowledge Graphs
*Programming:* R programming, Python, Java/ J2EE, Scala, C, C++, C#,  SP, Haskell, Rust, Smalltalk, Elixir, Visual C++, JavaScript, JQuery, HTML, PHP, XML, Tensor, Keras, Pytorch, Selenium, Beautiful soup
*Formal Languages:* Petri Nets (PN), Property Preserving Petri Net Algebra (PPPA), Colored Petri Net, Plural, Plaid, Typestate-oriented languages, Z-Notation, Java Modeling Language
*Databases***:** SQL, NoSQL, ODBC, oracle
*Software Tools & Applications***:** Hadoop, Spark, Pandas, Numpy, NoSQL, TensorFlow, MatplotLib, Cloudera, Pig, MATLAB, Eclipse, Lucene, SOLR, MongoDB, Hive, ElasticSearch, Intellij IDEA, Cython, Anaconda, PyCharm, H2O.ai. GraphLab, SQL server, Oracle, E-learning tools, OLAP, TCP/IP, NetBeans
*Soft Skills:* Communication, Collaboration, Creative Thinking, Critical Thinking, Problem Solving, Active Learning, Generating Hypothesis, Judgement, Interpersonal Skills, Teamwork.

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## References

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