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## CONTACT

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## LINKS

### GITHUB

<https://github.com/Ritam-Guha>

### GOOGLE SCHOLAR

<https://scholar.google.com/citations?user=sjZjZcAAAAJ&hl=en>

### LINKEDIN

<https://www.linkedin.com/in/ritam-guha-08b9a3138/>

## PROGRAMMING LANGUAGES

C, C++, Python, MATLAB, Java

## EXTRA-CURRICULAR

- Member of IEEE student sector since August 2019
- Participated in "Jontro-Tontro", an intra-college robotics competition
- Mentored two groups of juniors to complete two different projects on feature selection in my third year (2018)

# RITAM GUHA

**ritamguha16@gmail.com**

I am a simple guy with a straightforward strategy of thinking top-down and building bottom-up. The notions of machine learning, data science and intelligent information systems have deeply motivated me to pursue a research-oriented career in the intersection of the said fields. Engineering ideas into reality has always been my passion. I feel, if science and engineering move hand-in-hand, wonders can happen.

**Special Interests:** Optimization, Machine Learning, Nature-inspired algorithms, Feature selection, Image enhancement.

## EDUCATION

2016-2020

**B.E. in Computer Science and Engineering**

**Jadavpur University**

**Overall CGPA: 9.2 (till 7<sup>th</sup> semester)**

**Final Year Project:** Application of nature-inspired evolutionary algorithms in feature selection, image enhancement and engineering function optimization.

**AISSCE 2016 (12<sup>th</sup> Std.)**

**Delhi Public School, Ruby Park**

**95.4%, 4<sup>th</sup> in School, 7<sup>th</sup> in West Bengal**

(as depicted by local news channel ABP Ananda)

2014

**Madhyamik 2014 (10<sup>th</sup> Std.)**

**Ramakrishna Mission Boys' Home High School, Rahara**

**95.86% (100% in all 3 Science subjects, School Topper, 12<sup>th</sup> in West Bengal)**

## EXPERIENCE

June, 2019 -  
July, 2019

**Probe Information Services Pvt. Ltd.**

Software Engineer intern

### Contributions:

- Developed an automated web-scraping program (using Java Selenium framework) to store trademark registry information of every Indian company associated with Ministry of Corporate Affairs (MCA).
- Created a basic co-occurrence matrix-based NLP program to perform company oriented named entity recognition.

### Additional Experiences:

- Visited Probe's data warehouse in Namakkal, Salem and got to learn the company workflow. Interacted with the employees working in the manual team and attended a meeting between Probe and NextWealth organization.
- Learnt the importance of code refactoring while Probe was going through a complete refactor of its UI code.
- Got to know some sophisticated tools used in industry like version control systems, message queues, database systems etc.

## PERSONAL ACHIEVEMENTS

- Received INSPIRE award from Government of India, Ministry of Science & Technology for best performance in the school in science group.
- Ranked 68th in West Bengal Joint Entrance Examination (WBJEE, 2016).
- Secured 1st position in school and 12th position in the state level in 10<sup>th</sup> Standard Board examination (WBBSE). Secured 7th position in the state level (As depicted by local news channel ABP Ananda) in 12<sup>th</sup> Standard Board examination (CBSE).
- Currently holding the 2nd position in the Department of Computer Science and Engineering of Jadavpur University with an overall CGPA of 9.2 out of 10 (till 7th semester of the curriculum)

## REFERENCES ON REQUEST

### Dr. Ram Sarkar

Associate Professor,  
Department of Computer Science and Engineering,  
Jadavpur University,  
Email ID: rsarkar@cse.jdvu.ac.in,  
ramjucse@gmail.com.

### Dr. Seyedali Mirjalili

Centre for Artificial Intelligence Research and Optimization,  
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### Mr. Goutam Dan

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Probe Information Services Pvt. Ltd.  
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goutam.dan@probeinformation.com

## COLLEGE PROJECTS

Throughout the college years, I have worked on a well-known pattern recognition problem called feature selection (FS) and some other optimization problems under supervision of Prof. Ram Sarkar and Prof. Mita Nasipuri. Some of my projects are listed below:

- Implemented a novel optimization algorithm named Groundwater Flow algorithm (GWFA) which mimics the movement of groundwater from recharge areas to discharge areas following Darcy's law. The algorithm has been applied over several benchmark mathematical functions and engineering problems.
- Modified an existing nature-inspired algorithm named Ant Colony Optimization (ACO) by hybridizing it with filter method to perform feature selection using low computational cost.
- In any population-based metaheuristic approach, initialization is very important. If the population is not properly initialized, it may lead to problems like premature convergence, low exploration etc. In order to address these problems, we developed a new initialization strategy where the initial population were properly distributed in the search space with the help of clustering based on hamming distance and accuracy similarity.
- Image contrast enhancement is a very important computer vision problem. Transformation functions used in contrast enhancement have several parameters needed to be optimized. We modified an optimization algorithm called Selfish Herd Optimizer to perform Image Contrast Enhancement of 24 images present in an open source Kodak dataset.

## PUBLICATIONS

Some of my UG research work got published in reputed journals under the banner of Elsevier, Springer, De Gruyter etc. Some of them are mentioned below. The related research articles can be found in my Google Scholar profile.

- Ghosh, Manosij, Ritam Guha, Ram Sarkar, and Ajith Abraham. "A wrapper-filter feature selection technique based on ant colony optimization." *Neural Computing and Applications*: 1-19. (IF: 4.774)
- Guha, R., Ghosh, M., Chakrabarti, A., Sarkar, R., & Mirjalili, S. (2020). Introducing clustering-based population in Binary Gravitational Search Algorithm for Feature Selection. *Applied Soft Computing*, 106341. (IF: 5.472)
- Guha, R., Ghosh, M., Mutsuddi, S. *et al.* Embedded chaotic whale survival algorithm for filter-wrapper feature selection. *Soft Comput* (2020). <https://doi.org/10.1007/s00500-020-05183-1>. (IF: 3.05)
- G Guha, R., Ghosh, M., Kapri, S., Shaw, S., Mutsuddi, S., Bhateja, V., & Sarkar, R. (2019). Deluge based Genetic Algorithm for feature selection. *Evolutionary intelligence*, 1-11.
- Ghosh, Manosij, Ritam Guha, Riktim Mondal, Pawan Kumar Singh, Ram Sarkar, and Mita Nasipuri. "Feature selection using histogram-based multi-objective GA for handwritten Devanagari numeral recognition." In *Intelligent Engineering Informatics*, pp. 471-479. Springer, Singapore, 2018.

## HOBBIES

When I am not working, I may be found doing one of the following things:

- Playing with my pet dog Pluto.
- Binge watching Netflix or Amazon prime.
- Participating in Webinars.
- Playing Football or Cricket. Watching Formula 1 Grand prix.
- Cooking (Recent development).

## MOOC COURSES COMPLETED

I am always hungry for learning new things. Online courses are the best ways to armor yourself with various tools and hands-on experiences. I have successfully completed and earned a certificate for each of the following MOOC courses:

- **Neural Network and Deep Learning**, Coursera  
Instructor: Andrew Ng
- **Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization**, Coursera  
Instructor: Andrew Ng
- **Structuring Machine Learning Projects**, Coursera  
Instructor: Andrew Ng
- **The Complete Foundation Stock Trading Course**, Udemy  
Instructor: Mohsen Hassan, Montreal Trading Group

## ADDITIONAL CONTRIBUTIONS

- During the pandemic situation due to the outbreak of SARS CoV-2, I wanted to somehow help in the research of corona detection. Along with two of my friends, I developed an algorithm named Sewage Pooling Algorithm which uses wastewater samples from sewage systems to track the corona density in a particular area. If implemented properly, the workflow can recursively pinpoint the highly contaminated areas. The method depends on very low human intervention and can successfully monitor the virus situation in an area. With this idea, our team participated in a start-up competition named Techstars start-up weekend and the idea won the first prize in the competition. The idea of the algorithm is publicly available in arXiv repository: <https://arxiv.org/abs/2005.07269>
- I have shared my project codes and numerous hand-engineered datasets in my Github account. Many students and researchers have used my code and organized data format to pursue their research. I am in full support of code reusability and thus love to contribute to the open source community.