

# Shashank Pathak

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## EDUCATION

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- **University of Alberta** Edmonton, Canada  
*Masters of Science(Thesis) - Computing Science* *September 2022 - Present*

## SKILLS SUMMARY

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- **Languages:** C, C++, MATLAB, Python(Familiar), Golang(familiar), SQL
- **Frameworks:** Django, Flask, MathWorks, Tensorflow, Keras, Pytorch
- **Tools:** Kubernetes, Docker, GIT, Celery, Jenkins, MySQL, MongoDB, Kibana
- **Platforms:** Linux, Web, Windows, AWS(S3), minio(S3), RabbitMQ, Weights and Biases

## EXPERIENCE

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- **University of Alberta** Edmonton, Canada  
*Graduate Teaching Assistant* *Sep 2022 - Present*
  - **Course: Winter 2023:** CMPUT 204 , Algorithms-I(Prof. Xiaoqi Tan)  
**Fall 2022:** CMPUT 304, Algorithms-II (Prof. Ryan Hayward)
  - Responsible for taking seminars ,marking and evaluation for the quizzes,assignment and semester exams.
- **Inference Research Labs** India  
*Software Engineer* *Sep 2021 - June 2022*
  - **Team:** Worked in the SQUAD TEAM on products involving .
  - **Test Framework:** Worked on building backend apis and asynchronous request queues using rabbitmq.
  - **FAERS:** It is a product that gives all adversaries and efficacy of drugs.  
Worked on revamping code repository and feature additions using python scripts in flask.
  - **LifeCycleManagement:** It is a client facing application that provides interface to every other nference applications.  
Worked on new feature addition and solved critical bugs that helped improve the application performance and inaccuracies in data.
  - **Order-Statics:** Optimzation on number of graphQL querie calls was made to get order statics for patient cohorts in a time stamp.The query latency was reduced by 63 percent.
  - **Technologies:** Python, Pandas, Jupyter, Flask, MongoDB, Kibana, Golang, Redis, MongoDB
- **ClearTax** India  
*Software Engineer* *Dec 2020 - Sep 2021*
  - **Team:** Worked in the MARKETING TECH and MARKETPLACE TEAM.
  - **Glossary Phase-2:** Worked on 6 feature additions on glossary which lead to 43 percent traffic growth on glossary web pages.
  - **Black SMS Service:** Built the sms service for the investing app Black, which will help desktop user to get the playstore link on their mobile.
  - **Webflow Backend:** Built the APIS for routing the web pages built on webflow to cleartax domain.It had the capacity to bulk publish thousands of web pages via the API. It helped to quickly build and deploy web pages.
  - **Paytm SSO Integration:** Built APIs to integrate login via paytm using their internal APIS.
  - **Dockerization of CT-Leads:** Dockerized the ct-leads application which eased the process of deploying the code to different environments.
  - **Technologies:** Django Rest Framework, AWS S3 Bucket, Docker, Kubernetes, Jenkins.
- **Red Hat** India  
*Software Engineer Intern* *April 2020 - October 2020*
  - **Team:** Worked in the MIDDLEWARE R&D TEAM
  - **Kogito(Business Automation tool):** Worked on jenkins scripts for Kogito cloud Pipeline.It helped to automate and deploy Kogito cloud images and Kogito CLI.
  - It also helped running of nightly build pipeline.
  - **Technologies:** Golang, Jenkins, openshift.
- **Mitacs Globalink Research Internship** Alberta,Canada  
*University of Lethbridge* *May 2019 - Aug 2019*
  - **Host Professor:** Worked under the guidance of Prof Dr.Yllias Chali
  - **Text Summarization:** Worked on the problem statement "Query Based Text Summarization".  
Model architecture and experimental observation was made on the corpus.  
Baseline architecture used was incorporated from already existing state-of-art model for fast abstractive summarization using reinforcement learning for selective sentence rewriting.
  - **Technologies:** Python, Reinforcement Learning, Bi-LSTM, NLP, Tensorflow, Keras.

- **Summer Research Internship** India  
*Indian Institute of Technology, Indore* *May 2018 - July 2018*
  - **Host Professor:** Worked under the guidance of Prof Dr.Abhishek Srivastava
  - **Use of Machine Learning Techniques for improved Surveillance of the Melaghat Tiger Reserve.:**  
Eradication of cluster overlapping by shifting the variance.  
Worked on research paper for cluster optimization as an Optimum Path Forest Problem.  
Reproduced the entire algorithm from scratch in MATLAB.
  - **Technologies:** Matlab, Mathworks

## ACADEMIC PROJECT

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- **mRNA Vaccine Stabilization:** Implemented bi-GRU model for predicting degradation rates under different environmental condition at each base of a RNA sequence. It was then used to find stable RNA secondary structure and the corresponding rna-tool used to produce the structure.
- **Unsupervised deformable image registration:** Implemented Fedvox for image registration on fundus retinal images.The voxelmorph model was implemented under federated setting for privacy based image registration
- **Fairnes in Federated Learning Setting:** Worked on this project which focused on making fair deep learning model in federated learning setting on non-iid data (compas and adult dataset. SPD metric was used as an parameter for fairness).

## ACHIEVEMENTS

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- Awarded Department Recruitment Fellowship by University of Alberta.(Associated with Msc degree)
- Awarded Mitacs Graduate Fellowship for the academic year 2022-2023.(Associated with Msc degree)
- ACM-ICPC Asia West Regionalist, Amritapuri, 2019. Team: S4 ,Coach: Prof A.R Swain
- Global Rank-1 in Snackdown Online Qualifier Round among 25000+ teams by Codechef. Team: cooldhurra
- National Rank-216 in Google Hash Code by Google among 10000+ teams. Team: Baby Programmers
- Achieved Rank-2 among 600 participants in Hours of Code a college contest by KIIT University on HackerEarth.
- Geek on the top title awarded by GeeksforGeeks.

## TEACHING AND VOLUNTEER EXPERIENCE

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- **WILO at AMII Labs** Edmonton, Canada  
*Volunteered as a Judge panelist under program delivery support* *14th November - 28th November, 2022*
- **Educator at Unacademy** India  
*Taught data structure and algorithms for interview preparation.* *Sept 2021 - February 2022*
- **Trainer at Techbairn** India  
*Curated the whole training program named Code slayer.* *Jan 2021 - May 2021*
  - : Designed a robust syllabus for the course on Data Structures and Algorithms.
  - : Curated and articulated problems for practise and contests
  - : Was the lead instructor for the course.
- **Mentor at ICPC for Schools by Codechef** India  
*Mentored school student for coding competitions like Computing Olympiads and ACM ICPC* *Nov 2020 - Dec 2020*