

Supriti Ghosh

SOFTWARE ENGINEER · MTS-II AT NETAPP INC.

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Summary

I am looking for full-time job opportunity in software engineering. I have worked as a Software Engineer II at NetApp Inc in the Cloud Volumes Service (CVS) team and Hybrid Cloud Engineering (HCE) team to design and develop software features for Microsoft Azure and GCP platforms. Emphasizing continuous development and team strategy, my competencies thrive in engineering solutions and the expansion of the company.

Professional Experience

NetApp Inc 🏠

Pittsburgh, PA 16066

SOFTWARE ENGINEER II

June 2022 - present

- Tech Stack- **Go, Kubernetes, MySQL, Ansible, Python, Linux**
- **Cloud Volumes Service (CVS):** Developed CVS in the Storage as a service (STaaS) model and in a microservice architecture for backup services in Microsoft Azure, Google Cloud Platform (GCP) utilizing Kubernetes, Golang, and MySQL. Built solutions for scheduled and on-demand disaster recovery tasks for Azure which includes the lifecycle management of scheduled volume replication using CRR (Cross-Region Replication), scheduled backup to the cloud, and on-demand backup, and restore from an object stored in the cloud.
- **Hybrid Cloud Engineering (HCE):** Designed and developed software features in Hybrid Cloud Engineering (HCE) and build solutions that help customers in the E-Series solutions automation team with *Ansible* collections. Developed infrastructure to automate the deployment of E-Series solutions, especially the SANtricity, Host, and BeeGFS collections which encompasses the development and testing of high availability (HA) solutions.

University of South Dakota 🏠

Vermillion, SD 57069

SOFTWARE ENGINEER, BIOCOMPUTATIONAL BIOLOGICAL ENGINEERING LAB, BIOMEDICAL ENGINEERING

January 2022 - May 2022

- Tech Stack- **JavaScript, ReactJS, GraphQL, Elastic Search, Python**
- **Web Development:** Worked in a team of 11 engineers to develop and maintain the search-engine-based biomedical system which would be used by millions of users and more than thousands of scientists and developed web applications using JavaScript, ReactJS, SailsJS, GraphQL & Elastic Search to analyze and process data. Ensured the application's security and ability to interact with multiple APIs and databases.
- **NLP Applications:** Designed Natural Language Processing (NLP) applications using Python and machine learning techniques. Used effective text representations and automatic categorization to transform natural language into useful features. Trained and developed NLP models and evaluated them for the deployment of a biomedical-based search engine.

MACHINE LEARNING (ML) ENGINEER, 2AI: APPLIED ARTIFICIAL INTELLIGENCE RESEARCH LAB, COMPUTER SCIENCE

January 2021 - December 2021

- Tech Stack- **Python, TensorFlow, Keras, scikit-learn, CNN, Matplotlib, Tableau** [[GitHub](#)]
- **DNN in Chest X-ray to screen Covid-19:** Implemented neural network on the balanced dataset to prevent from possible bias. Collected 10k chest x-rays to implement binary classification (Covid-19 vs Non-Covid-19). Used the different pre-trained models of deep learning to compare the performance. Generated lung segmentation and heatmap to screen and localize interpretable abnormalities.
- **CheXNet to screen Covid-19:** Implemented CheXNet on a dataset of 4.6k to screen Covid-19 using chest X-ray images. CheXNet is initially designed for radiologist-level pneumonia detection in chest X-rays (CXRs). Implemented feature extraction technique using deep learning which showed success in identifying Covid-19. [[Publication](#)] [[Presentation](#)]
- **Literature Review of Covid-19 Screening Algorithms using Chest X-rays:** Reviewed 50 peer-reviewed papers and compared the results for screening chest X-rays. Also collected their datasets and compared performance with relation to the size and quality of data. [[Publication](#)]

Coursera 🏠

Remote

MENTOR, DEEPLARNING.AI

August 2021 - June 2022

- Tech Stack: **Python**
- Mentored & guided learners from all over the world with programming methods, code reviews & technical problems in Python.
- Checked requirement satisfaction and helped engineers with solutions and new ideas by actively participating in Discussion Forums.

NAMI (National Alliance on Mental Illness) 🏠

Ames, IA 50010

INTERN, DATA ANALYST

March 2020 - November 2020

- Tech Stack- **Python, PHP**
- Data interpretation and results analysis using statistical training and sampling. Also developed the data collection systems and storage.
- Optimized statistical efficiency and quality. Conducted data filtration and cleaning by reports generation (Python).
- Developed web platform with PHP backend and worked with management to prioritize business and information needs.

Jahangirnagar University 🏠

Dhaka, Bangladesh

RESEARCH ASSISTANT, INSTITUTE OF INFORMATION TECHNOLOGY

January 2016 - December 2017

- Tech Stack: **Matlab, SQL**.
- Project: Identify Fingerprint Using Minutiae Matching in Biometric Security System. This research presents a new method of identifying fingerprints in biometric security systems because the fingerprint is one of the best examples of biometric security and it can identify the personal information and it is much more secure than any other biometric identification system.
- The experiment was performed in Matlab & SQL. The experimental result exhibits the performance of the proposed method. [[Publication](#)]

Education

University of South Dakota (USD)

MS IN COMPUTER SCIENCE

Vermillion, SD 57069

January 2021 - May 2022

- **CGPA:** 3.8/4.0, **Thesis:** Deep Features to Analyze Pulmonary Abnormalities in Chest X-rays due to Covid-19 [[Dissertation](#)] [[Presentation](#)]

Jahangirnagar University (JU)

MS IN INFORMATION TECHNOLOGY

Dhaka, Bangladesh

January 2016 - January 2018

- **CGPA:** 3.71/4.0, **Project:** Identify and Recognize Person Using Iris Biometric Security System

Jahangirnagar University (JU)

BS IN INFORMATION TECHNOLOGY

Dhaka, Bangladesh

December 2011 - December 2015

- **CGPA:** 3.58/4.0, **Thesis:** Novel Method to Assess Motion Blur Kernel Parameters and Comparative Study of Restoration Techniques Using Different Image Layouts [[Publication](#)]

Technical Skill

Platforms	Microsoft Azure, Google Cloud Platform (GCP), AWS Sagemaker
Programming Language	Python, Go, Java, C, C++, C#
DevOps	CI/CD, GIT, Linux, Agile Methodologies, Scrum
Cloud Technologies	Kubernetes, Ansible, RESTful API
Web Technologies	HTML, CSS, PHP, JavaScript, ReactJS, SailsJS, GraphQL, Elastic Search
Database	MySQL, PostgreSQL, Tableau, Power BI, Oracle, Microsoft SQL Server, Grafana
Machine Learning	Scikit-learn, Keras, TensorFlow, PyTorch
Frameworks & IDEs	Visual Studio, Goland, Netbeans, .NET, Matlab
Other Skills	Latex, Adobe Photoshop, Shell, CISCO Packet Tracer

Projects

Prometheus Support for Beegfs Mon service

E-SERIES HACKATHON PROJECT [[GitHub](#)]

Prometheus, Grafana, C++

November 2022

- For visualization of the data, beegfs-mon provides predefined Grafana dashboards and charts to provide insight into both the health and performance of the filesystem. The service and the Grafana panels are contained in the optional beegfs-mon package. The package is available from the general BeeGFS repository.

Covid-19 Recognition in CT Scans using Artificial Intelligence (AI) guided tools

COURSE PROJECT FOR ADVANCED ARTIFICIAL INTELLIGENCE COURSE [[GitHub](#)]

Python

January 2022 - May 2022

- AI-guided algorithms have been utilized to screen CT scans for Covid-19 analysis. A total of 1,810 CT scan datasets have been collected for this project where 1,267 Covid-19 patients' and 543 healthy patients' CT Scans. The pre-trained models InceptionNet V3 and U-net have been used for training purposes. K-fold cross-validation has been used to verify a better model. Our main goal was to show which model can perform better to detect, localize and segment Covid-19 cases using CT scan images so that we can use one or two globalized models for Covid-19 analysis.

Neural Network

COURSE PROJECT FOR MACHINE LEARNING FUNDAMENTALS COURSE [[GitHub](#)]

Python

January 2022 - May 2022

- Used 400 images in total (200—200 - balanced data) in this project. Trained Neural Network with three different activation functions: a) linear, b) Sigmoid, and c) Tanh. Used k (=5)-fold cross-validation and computed the confusion matrix, precision, recall, and F1-score. Reported which kernel performs better of all.

Fake Job Detection

DATA SCIENCE PROJECT [[GitHub](#)]

Python, NLP

May 2021 - August 2021

- Used Python libraries to detect fake jobs. The dataset contains of 18k job descriptions where around 800 false job descriptions is also included. Used logistic regression model because it can be used when the dependent variable is binary and also the dataset has been used to train and classify suspicious job descriptions.

Sensor Data Analysis for Internet-of-Things

COURSE PROJECT FOR IOT & SECURITY COURSE [[GitHub](#)]

Python, esp32, Raspberry Pi 4

January 2021 - May 2021

- In this project, collected temperature and humidity data for continuously two hours on five different days using esp32, DHT11, MQTT, Raspberry Pi 4, breadboard and saved all the data in google firebase. For data plotting, used python libraries for line plotting, box plotting of temperature and humidity data and also line grid plots for three different days of temperature and humidity data. Then data has been pre-processed and linear regression models have been used for data analysis of MSE, AIC and also to plot the actual and predicted values.

IoT Big Data Management

COURSE PROJECT FOR IOT & SECURITY COURSE [[GitHub](#)]

PostgreSQL, Python

January 2021 - May 2021

- Used PostgreSQL to manage big datasets for Internet-of-Things in this project. Also used python to change the time format (UNIT time to dd-mm-yy) and after that, included the data in the PostgreSQL to store and process.

Identify and Recognize Person Using Iris Biometric Security System

Matlab, SQL

MASTERS PROJECT [[GITHUB](#)]

August 2016 - December 2017

- Used automated iris recognition for personal identification to verify both uniqueness of the human iris and also its performance as a biometric based system. The performance of research was measured for stored database which is scored 0% each for False Reject Rate (FRR) and False Accept Rate (FAR) and consequently, iris recognition is shown to be a precise and reliable biometric technology.

Hotel Management System

MySQL

COURSE PROJECT FOR INFORMATION STORAGE AND RETRIEVAL COURSE [[GITHUB](#)]

August 2021 - December 2021

- Designed a database for the hotel management system. In this project, created relations between customers, HR, services of the hotel etc. It would allow the hotel management to handle all hotel activities.

Final Result Processing System

C#, MySQL

SEMESTER PROJECT FOR SOFTWARE ENGINEERING [[GITHUB](#)]

July 2014 - December 2014

- In this project, developed an application software in C# entitled "Final Result Processing System" which is a desktop application where the teachers can insert students databases, calculate results and Grade Point Average. The teachers could log in and update the student databases and results. The mark would be calculated automatically and saved in this software for future use. The application is built through C#, MySQL and provides the flexibility to add, modify or recreate new results for students.

Publications

INTERNATIONAL CONFERENCE/JOURNAL PAPERS

[Google Scholar](#)

- KC Santosh, **Supriti Ghosh**, Debasmita GhoshRoy, "Deep Learning for Covid-19 Screening using Chest X-rays in 2020: A Systematic Review" *International Journal of Pattern Recognition & Artificial Intelligence (IJPRAI)*. [[IJPRAI](#)]
- KC Santosh, **Supriti Ghosh**, "CheXNet for the Evidence of Covid-19 Screening using 2.3K Positive Chest X-rays" *The 4th International Conference on Recent Trends in Image Processing & Pattern Recognition (RTIP2R)*, December 2021. [[RTIP2R](#)] [[Presentation](#)]
- Supriti Ghosh**, Mohammad Abu Yousuf, "Novel Method of Identifying Fingerprint Using Minutiae Matching in Biometric Security System" *International Journal of Advanced Engineering, Management and Science (IJAEMS)*, ISSN: 2454-1311, Vol-2, Issue-7. [[IJAEMS](#)]
- Munira Akter Lata, **Supriti Ghosh**, Farjana Bobi, Mohammad Abu Yousuf, "Novel method to assess motion blur kernel parameters and comparative study of restoration techniques using different image layouts" *5th International Conference on Informatics, Electronics and Vision (ICIEV 2016)*, Dhaka, Bangladesh. [[IEEE Xplore](#)]

Certifications

SPECIALIZATION COURSES OFFERED ON [NETAPP INC](#)

- Using SANtricity Software · NetApp · [[Certification](#)]

SPECIALIZATION COURSES OFFERED ON [COURSERA](#)

- Google Data Analytics Professional Certificate · Google · [[Certification](#)]
- Applied Data Science with Python · University of Michigan · [[GitHub](#)] [[Certification](#)]
- Practical Data Science · DEEPLARNING.AI & AMAZON WEB SERVICES · [[GitHub](#)] [[Certification](#)]
- Machine Learning with Python · IBM · [[Certification](#)]

Presentation

2022	YWIT 2022 , Presented in the YWIT 2022 at the NetApp Inc.	C. Township, PA
2022	IdeaFest 2022 , Presented research in the IdeaFest 2022 at the University of South Dakota (USD).	Vermillion, SD
2021	RTIP2R'2021 , Presented paper in the International Conference on Recent Trends in Image Processing & Pattern Recognition (RTIP2R) .	Msida, Malta
2021	IdeaFest 2021 , Presented research proposal in the IdeaFest 2021 at the University of South Dakota (USD).	Vermillion, SD
2021	CSC 790 - Seminar , Presented my research in the seminar lecture series of department of computer science at the University of South Dakota (USD).	Vermillion, SD

Professional Activities

VOLUNTEER OPPORTUNITIES AND SERVICES

- Core Member of WIT NANE**, [NetApp Inc](#), Cranberry Township, PA 16066. [July 2022 - January 2023]
- Session Lead at YWIT 2022**, [NetApp Inc](#), Cranberry Township, PA 16066. [September 2022]
- Journal Reviewer**, [SN Computer Science](#), Remote [October 2022]
- AI Ethics Mentor**, [Teens in AI x Harvard x MIT Hackathon](#), Cambridge, MA. [March 2022]
- Social Media Coordinator**, [Association for Computing Machinery \(ACM\)](#), University of South Dakota, Vermillion, SD 57069. [July 2021-May 2022]
- AI Ethics Mentor**, [Teens in AI](#), San Francisco, CA. [March 2021]
- Mentor**, [YSS \(Youth Standing Strong\)](#), Ames, IA 50010. [Sept 2019 - Oct 2020]
- Program Coordinator (Professional Activities)**, [IEEE Student Branch](#), Jahangirnagar University, Dhaka, Bangladesh. [May 2015 - May 2016]
- Volunteer (Technical Activities)**, International Conference on Electrical Engineering and Information & Communication Technology ([ICEEICT](#)). [May 2015]