Supriti Ghosh

MS STUDENT · GRADUATE RESEARCH ASSISTANT · COMPUTER SCIENCE · UNIVERSITY OF SOUTH DAKOTA

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Summary

I am looking for a full-time job opportunity in data science and software engineering. I finished my bachelor's and masters in Information Technology and worked as a data analyst intern at NAMI (National Alliance on Mental Illness) Central Iowa, Ames, IA 50010. I am currently a graduate (MS) student in the Department of Computer Science at the University of South Dakota. I am also working as a Graduate Research Assistant in the Pattern Analysis and Machine Intelligence Research Lab. I want to pursue a development-oriented career in the field of computer science.

Education

University of South Dakota (USD)
Vermillion, SD 57069

MS IN COMPUTER SCIENCE
January 2021 - Present

- **CGPA:** 3.75/4.0, **Thesis:** Deep Features for Covid-19 Screening and Decision-Making [GitHub], **Advisor:** Dr. KC Santosh
- **Courses:** IoT & Security · Mathematics for Machine Learning · Seminar · AI in Medical Imaging · Design and Analysis of Computer Algorithms · Information Storage and Retrieval
- **Expected Graduation:** May 2022

Jahangirnagar University (JU)
Dhaka, Bangladesh

M.Sc IN INFORMATION TECHNOLOGY
January 2016 - January 2018

- **CGPA:** 3.71/4.0, **Project:** Identify and Recognize Person Using Iris Biometric Security System [GitHub], **Advisor:** Dr. Mohammad Abu Yousuf
- **Courses:** Advanced Database System · Probability & Stochastic Process · Advanced Digital Communication · Information Systems & Securities · Client Server Technologies & Cloud Computing · Advanced Mobile & Cellular Communication Technologies · Software Project Management & Quality Assurance · Geographical Information Systems · E-Commerce & E-Governance · Computer Vision & Image Processing

Jahangirnagar University (JU)
Dhaka, Bangladesh

B.Sc. IN INFORMATION TECHNOLOGY
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] [GitHub] **Advisor:** Dr. Mohammad Abu Yousuf
- **Courses:** Data Structures · Algorithm Analysis · Digital Logic Design · Object Oriented Programming · Operating System · Computer Architecture · Wireless & Mobile Communication · Computer Network Security · Database Management System · Differential & Integral Calculus · Complex Variable & Vector Algebra · Statistical & Probability Theory · Discrete Mathematics · Computational Mathematics · Simulation & Modeling · Electronic Devices & Circuits · Information System Analysis · Computer Network & Internet Technology · Signal & System · Software Engineering · Computer Graphics · Web Technologies · Microprocessor & Interfacing · Telecommunication System · Management Information System · Introduction to Bio-informatics · Artificial Intelligence & Neural Network · Parallel & Distributed System · Multimedia System & Application · Human Computer Interfacing · Digital Image Processing & Pattern Recognition · Mobile Application Development

Professional Experience

University of South Dakota
Vermillion, SD 57069

GRADUATE RESEARCH ASSISTANT, PATTERN ANALYSIS AND MACHINE INTELLIGENCE RESEARCH LAB
January 2021 - Present

- **Project:** Using Deep Neural Network in Chest X-ray to classify Covid-19. Implementing neural network on the balanced dataset to prevent it from possible bias. Collected 10k chest x-rays to implement binary classification (Healthy vs Non-healthy) to detect Covid-19. Using the different pre-trained models of deep learning to compare the performance. [GitHub]

Coursera
Remote

MENTOR, DEEPLEARNING.AI
August 2021 - Present

- **Responsibilities:** Voluntarily mentoring and guiding learners from all over the world with their problems and professional paths. Communicating with course instructors regarding problems. Answering general questions and discovering new ideas by actively participating in Discussion Forums.

NAMI (National Alliance on Mental Illness) Central Iowa
Ames, IA 50010

INTERN, DATA ANALYST
March 2020 - November 2020

- **Responsibilities:** Interpreting data, Analyzing results using statistical training, Developing and implementing data collection systems and optimizing statistical efficiency and quality, Filtering and cleaning data by reviewing reports using Python, developing web platform with PHP and Work with management to prioritize business and information needs.

Jahangirnagar University
Dhaka, Bangladesh

RESEARCH ASSISTANT, INSTITUTE OF INFORMATION TECHNOLOGY
January 2016 - December 2017

- **Project: Identify Fingerprint Using Minutiae Matching in Biometric Security System** · This project presents a new method of identifying fingerprint in biometrics security system because fingerprint is one of the best example in biometric security and it can identify personal information and it is much secure than any other biometric identification system. The experimental result exhibits the performance of the proposed method. [Publication] [GitHub]

Technical Skill

Programming Language	C, C++, Java, Python, C#
Database	Postgres, MySQL, Microsoft SQL Server, Oracle
Web Technologies	HTML, CSS, PHP, JavaScript
Frameworks & IDEs	Eclipse, Visual Studio, .Net, Netbeans, Matlab, PyCharm
Machine Learning	Scikit-learn, Keras, TensorFlow
Other Software Skills	Latex, GIT, Adobe Premiere, Shell, CISCO Packet Tracer

Publications

INTERNATIONAL CONFERENCE/JOURNAL PAPERS   *Google Scholar*

- KC Santosh, **Supriti Ghosh**, "CheXNet for Covid-19 screening using chest X-rays" *The 4th International Conference on Recent Trends in Image Processing & Pattern Recognition (RTIP2R), December 2021.* [Accepted to appear]
- **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]

Research Experience

Data Science	Artificial Intelligence, Machine Learning, Natural Language Processing
Deep Neural Network	Convolutional Neural Network, Object Detection
Healthcare Data Analytics	Pattern Recognition, Computer Vision, Image Processing

Certifications

SPECIALIZATION COURSES OFFERED ON COURSERA

PostgreSQL for Everybody · University of Michigan · [Continuing]
- Database Design and Basic SQL in PostgreSQL · [Certification]
- Intermediate PostgreSQL · [Continuing]
- JSON and Natural Language Processing in PostgreSQL · [Continuing]
- Database Architecture, Scale, and NoSQL with Elasticsearch · [Continuing]

Applied Data Science with Python · University of Michigan · [GitHub] [Continuing]
- Introduction to Data Science in Python · [GitHub] [Certification]
- Applied Plotting, Charting & Data Representation in Python · [GitHub] [Certification]
- Applied Machine Learning in Python · [Continuing]
- Applied Text Mining in Python · [GitHub] [Certification]
- Applied Social Network Analysis in Python · [GitHub] [Certification]

Practical Data Science · DEEPLEARNING.AI & AMAZON WEB SERVICES · [GitHub] [Certification]
- Analyze Datasets and Train ML Models using AutoML · [GitHub] [Certification]
- Build, Train, and Deploy ML Pipelines using BERT · [GitHub] [Certification]
- Optimize ML Models and Deploy Human-in-the-Loop Pipelines [GitHub] [Certification]

Python 3 Programming · University of Michigan · [GitHub] [Certification]
- Python Basics · [GitHub] [Certification]
- Python Functions, Files, and Dictionaries · [GitHub] [Certification]
- Data Collection and Processing with Python · [GitHub] [Certification]
- Python Classes and Inheritance · [GitHub] [Certification]
- Python Project: pillow, tesseract, and opencv · [GitHub] [Certification]

Python for Everybody · University of Michigan · [GitHub] [Certification]
- Programming for Everybody (Getting Started with Python) · [GitHub] [Certification]
- Python Data Structures · [GitHub] [Certification]
- Using Python to Access Web Data · [GitHub] [Certification]
- Using Databases with Python · [GitHub] [Certification]
- Capstone: Retrieving, Processing, and Visualizing Data with Python · [Certification]

COURSES OFFERED ON COURSERA

- **Machine Learning with Python** · IBM · [Certification]

COURSES OFFERED ON GOOGLE DIGITAL GARAGE

- **The Fundamental of Digital Marketing** · Google · [Certification]

Academic Projects

Sensor Data Analysis for Internet-of-Things
Python

COURSE PROJECT FOR IOT & SECURITY COURSE [GITHUB]
January 2021 - May 2021

- In this project, I have 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, I have 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.

Big Data Management of Internet-of-Things
PostgreSQL, Python

COURSE PROJECT FOR IOT & SECURITY COURSE [GITHUB]
January 2021 - May 2021

- I have used PostgreSQL to manage big datasets for Internet-of-Things in this project. I have also used python to change the time format (UNIT time to dd-mm-yy) and after that, I have included 4000 rows of data in the PostgreSQL to store and process.

Fake Job Detection
Python

DATA SCIENCE PROJECT [GITHUB]
May 2021 - August 2021

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

Identify and Recognize Person Using Iris Biometric Security System
Matlab

MASTERS PROJECT [GITHUB]
August 2016 - December 2017

- I have 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.

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 login 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.

Library Management System
PHP, MySQL

SEMESTER PROJECT FOR DATABASE MANAGEMENT SYSTEM [GITHUB]
April 2014 - June 2014

- This is a web service based application where the list of books can be saved in the database. People can login and can read books and can also hire or purchase books. The application is built through PHP & MySQL.

Seven-Segment Display
Hardware

SEMESTER PROJECT FOR DIGITAL LOGIC DESIGN
October 2013 - December 2013

- This project was a hardware based device which is used in basic calculators, digital clocks, electronic meters and other electronic devices. This is a procedure of electronic display device for displaying decimal numerals.

Honors & Awards

2018	**University Merit Scholarship**, Top 10% in Graduate Level, Jahangirnagar University	*Dhaka, Bangladesh*
2016	**University Merit Scholarship**, Top 20% in Undergraduate Level, Jahangirnagar University	*Dhaka, Bangladesh*

Presentation

2021	**IdeaFest 2021**, Presented research idea in the IdeaFest 2021 at the University of South Dakota.	*Vermillion, SD*
2021	**CSC 790 - Seminar**, Presented my research in the the seminar lecture at department of computer science.	*Vermillion, SD*

Organizations

2020	**Student Member**, Association for Computing Machinery (ACM)
2015	**Student Member**, Institute of Electrical and Electronics Engineers (IEEE)

Activities

- **Social Media Coordinator**, Association for Computing Machinery (ACM), University of South Dakota, Vermillion, SD 57069. [July 2021 to Present]
- **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' 2015. [May 2015]