

## STATEMENT OF PURPOSE

TANVI JAIN

I firmly believe that our ability to see the world from a different perspective than other successful people makes us find solutions to various problems that are increasing in this contemporary world every day. We are currently experiencing the technological and computing revolution that eventually has radical effects on our lives and hypothetically redefines what it means to be human. Because my life has virtually coincided with the rise of the modern computing industry, I can sense that there are still tremendous developments that are yet to come in this field. and I always found computers to be fascinating and chose Computer Science as a major because they will lead the way in the future. The promising career prospects of the field posed as a cherry on top, and supported by my zeal for the subject, I seek a Master's degree in Computer Science from a competent stage such as your University.

Early in my life, I learned from my parents to work hard and be optimistic. They always said, “The problem is not lack of resources or abilities, but the lack of will”. Being from a small town with a radius of 5 miles called Dhar, Madhya Pradesh in India, I had to travel to a city for higher secondary schooling due to a lack of educational resources. In my formative years, my fortitude was strengthened by seeing my parents who raised me into a confident, hardworking woman while never letting their financial position become adversity. As a result, arising from a humble background made me responsible, and strong. I am appreciative of their efforts and have been working hard to achieve everything they wished for.

My academic record has been consistently good. I was the district topper in 10<sup>th</sup> Grade and secured 5<sup>th</sup> position in overall district in 12<sup>th</sup> Grade. For my undergraduate program, I chose Computer Science and Engineering at SRM University, Kattankulathur Campus. A highly regarded institute, its sole focus lies in guiding future engineers to be assets to society. I learned and gained expertise in various facets of computer science and engineering such as Computer Architecture, Data Structures, DBMS, Operating Systems, Machine Learning, Design & Analysis of Algorithms, Compiler Design, and Networking. Gaining programming skills such as C, C++, Java, R, and Python, The deeper I indulged in them, the more I learned and appreciated my love for this field. I was more capable to turn my ideas into real coding and make useful applications too. Excellent teaching methodologies emboldened me towards hosting a goal to contribute to advancing technology and meeting societal needs.

During my undergraduate studies, I constantly attempted to link theoretical knowledge to practical applications through various academic projects in different domains. One of these projects was 'A Smart Stick For Visually Impaired People Using Raspberry Pi, where we designed a prototype system that uses the concepts of Internet Of Things (IoT), Deep Learning with Image Processing techniques to detect and trace the objects. This project investigates methods and procedures to construct an efficient system to assist blinds in their everyday life. In particular, various technologies that can be utilized to build a wearable system are examined. This function highlights the significance and additionally affords the commands to blinds for effective navigation and secure Information with the aid of using incorporating objects/pedestrian in real-time. The result obtained was extremely satisfying, given the condition that the recognition of the target objects was done in a dynamic environment. Input frame of a video sequence detection in a person, chair, and bottle with a confidence level of 95% approximately although the chair is kept far from the module it

detects the object at an accuracy of more than 90%. Working in the domain of AI and Natural Language Processing (NLP) always fascinated me and also inspired me to work on Zira, a personal voice assistant. Draws its inspiration from virtual assistants like Cortana for Windows, and Siri for iOS where users can interact with the assistant through voice commands. The experience of working on this project made me curious and motivated to continue to explore the domain further.

After completing my Bachelor's degree, I accepted the job offer from TCS(Tata Consultancy Services) to work as System Engineer, I joined the development team and worked on a project titled 'TCS' Enterprise Rights Management Solution' (TERMS). As a Developer, I learned and worked on different technologies and tools like Angular, Java, and JavaScript along with working on platforms like AWS during my project tasks. Developed various modules from scratch for TERMS, improved the overall look and feel of various screens and also contributed to defect fixing at various levels of testing. Possessing zeal for computer science, I was proactive about growing my skill set in other ways and completed online certification courses on Azure Fundamentals by Microsoft, Python programming from the UdeMy platform, Web Development from Coursera, and DMBS from NPTEL. So, I believe a Master of Science degree will not only enable me to widen my existing knowledge base but also instil in me the attributes necessary to carry out independent research, practice application-oriented thinking and accumulate the much-required technical knowledge for a scientific career.

There is a lot to learn and explore in the field of Computer Science. I always wanted to use my education for enhancing the lives of not just human beings but nature as a whole. So, I believe a Master of Science degree specializing in Computer Science involving general courses like Data Mining, Artificial Intelligence, and Machine Learning along with an emphasis on Human-Computer Interaction and Sensors & IoT will enable me to widen my existing knowledge source. **Master of Science in Computer Science** at your **University** would better equip me with the requisite knowledge.

Given the university's distinguished reputation, I am confident that a master's degree in Computer Science from your **University** will provide me with numerous opportunities to learn and grow my technical proficiency in the varied areas of computer science. My ultimate ambition in life has always been to contribute to society, and the cutting-edge facilities provided will allow me to experiment more and gain knowledge to contribute to society's well-being. Furthermore, Sharing the classroom with some of the most brilliant minds from around the world would be a humbling experience. The strong alumni network and industry connections provided by the **University** would help me reach people in high places around the world which would help me collaborate with like-minded individuals and well hone my technical skills.

Therefore, I am applying to the Master's Program of your esteemed university, commencing in the Fall of 2023. While I am certain that an elite course such as yours will be a significant challenge and test my limits, I have confidence in my sincerity and dedication. I hope to grow and excel and prove to be a valuable asset and source of pride for your institution in the future.

I sincerely hope that my application is positively received by the admissions board.

Thanks, and Regards,  
Tanvi Jain

## LETTER OF RECOMMENDATION

To,

The Admission Committee,

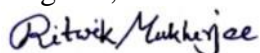
It gives me immense pleasure to speak about the potential of **Miss. Tanvi Jain** who is applying for the Master's program at your reputed university. In my capacity as her Project Manager, my observations of Tanvi come through my close interactions with her. Tanvi has been associated with **Tata Consultancy Services** as **System Engineer** since July 2021 and I have known her since then.

Being a recent college graduate, Tanvi successfully adapted to the work and culture of the organization and has been a strong performer. During her time here at TCS, she has done various successful deliveries and improved the existing processes. Her consistent analytical skills, valuable suggestions, quick adaptation to new technologies and demonstrably superior problem-solving skills earned her accolades and recognition. One of the qualities I admire is her communication skills. She knows how to present herself in a professional setting and how to effectively put forth her ideas while also sounding very convincing.

I also got to see her technical knowledge when she had to work on a critical and complex project for us titled '**TCS' Enterprise Rights Management Solution' (TERMS)**. As a Developer, she has learned and worked on different technologies and tools like Angular, Java, JavaScript, and Python along with working on platforms like AWS during her project tasks. She always displays a can-do attitude when faced with any challenging assignment; like developing various modules from scratch for TERMS where her work was commendable and has been highly appreciated. She also quickly analyzed the defects and contributed to defect fixing at various levels of testing. She has portrayed her capabilities to the fullest in all the development tasks which were assigned to her. She delivered most of her work defect-free and always took initiative in improving TERMS look and feel. She also actively takes part in volunteering activities whenever possible and did a great job picking up on non-technical knowledge as well.

I think if placed in a most conducive environment for intellectual nurturing, Tanvi will surely emerge as a great prospect for research in her field of interest. Your esteemed university will help her develop her skills to a greater extent making her stand out among her peers. I believe that Tanvi has all the essential qualities to pursue graduation at your university and I wholeheartedly back her decision. I strongly endorse her application for admission to your esteemed institution and also for financial aid.

Regards,



Ritwik Mukherjee

Developer

Tata Consultancy Services

Email: [ritwik.mukherjee@tcs.com](mailto:ritwik.mukherjee@tcs.com)

+91-9748402759

## **LETTER OF RECOMMENDATION**

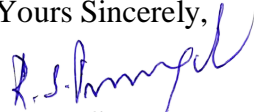
I am writing to you in support of **Miss. Tanvi Jain** and her desire to attend your University for Masters in Computer Science. I have known Tanvi Jain for about 5 years during her pursuit of a bachelor's degree at SRM University, Chennai, India.

During her undergraduate studies, I taught her in my **Data Science and Big Data Analytics and Web Programming** classes. She has also completed an academic project titled **IMDB Data Analysis** using various concepts of Data Science under my supervision. Tanvi is a promising student, who has demonstrated that she has the necessary skills to succeed in a graduate program. Having interacted with her both inside and outside the classroom, I can say with confidence that she is an intelligent and enthusiastic learner, who is very quick at grasping concepts, which others fail to conceive.

As her mark sheets show, her academic performance has been outstanding. She scored 91.22 per cent and is among the top 100 students from our department's total of 1600 students. Along with teaching her theory, I also taught her the practical aspects of the subject. Tanvi is a conscientious student who rarely misses an assignment. I've watched Tanvi's academic progress since the start of her degree program and she scored consistently well while also participating in other curricular and co-curricular activities.

While guiding Tanvi during her academic project, I noticed her intelligence, sincerity, and analytical approach. The project was to build a system to study IMDB users' ratings about movies with different methodologies used in data science and compare their performance. Since IMDB data is getting created in a very huge amount daily with new upcoming movies, games, and series there is a huge demand to process and carefully study this data to make it usable. To come up with such an idea was highly appreciated by the management and the authorities. Tanvi led her team and worked hard to collect the data from various resources. She scrupulously understood the applicability of the project in today's world. I was thus impressed by her problem-solving skills.

With her strong effort and respectful attitude, Tanvi Jain was the perfect student. I have no doubt that she will continue to perform well with the same zealous and inquisitive mind as she did during her graduate program. I recommend her strongly for the master's program offered at your university with a lot of faith and confidence in the abilities of this young mind.

Yours Sincerely,  


**Dr. R. S. Ponmagal**

Associate Professor

Department of Computing Technologies

SRM Institute of Science and Technology

E-mail: ponmagas@srmist.edu.in

Contact Number: +91-9698433804

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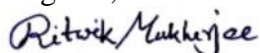
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Regards,



Ritwik Mukherjee

Developer

Tata Consultancy Services

Email: [ritwik.mukherjee@tcs.com](mailto:ritwik.mukherjee@tcs.com)

+91-9748402759

# Tanvi Jain

Stony Brook, NY, USA • [tanjain@cs.stonybrook.edu](mailto:tanjain@cs.stonybrook.edu) • +1 (631) 202-7073 • [LinkedIn](#) • [GitHub](#)

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## EDUCATION

Stony Brook University, Stony Brook, NY

Dec 2024

Masters of Science in **Computer Science**

GPA: 3.6/4.0

Coursework: Database Management, Data Science Fundamentals, Data Structures and Algorithms Analysis, Discrete Math

SRM University, Chennai, India

May 2021

Bachelor of Technology in **Computer Science and Engineering**

GPA: 3.7/4.0

Coursework: Operating Systems, Cloud Systems, Software Engineering, Object-Oriented Programming

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## PROFESSIONAL EXPERIENCE

**SOFTWARE ENGINEERING INTERN | CVS HEALTH, TX, USA**

May 2024 - Present

- Played a key role as a **Data Steward** in advancing the CVS Data Portal's **metadata quality from 20% (poor) to 100% (excellent)** by expertly managing and curating AI-generated data.
- Spearheaded the **development of APIs** for the EMRD (Enterprise Master Reference Data Management) application, a data analytics platform designed to facilitate seamless access to reference data artifacts such as global lookup tables, cross-reference tables, and industry standard code sets, ensuring efficient data exchange and integration with existing healthcare systems.
- Designed detailed 10+ ETL flows** using Lucid chart to showcase team offerings, enhancing visibility across CVS and for stakeholders, and aligning reference data process flows with enterprise standards.
- Won the DDAT Intern Innovation Challenge** organized by CVS by proposing and developing a proof of concept for a three-month diabetes tracking system on the patient portal, aimed at reducing hospital visits and **increasing Aetna Medicare Advantage margins** by 15% through a 20% reduction in technology costs.

**GRADUATE ASSISTANT | WOMEN IN SCIENCE AND ENGINEERING, NY, USA**

October 2023 – May 2024

- Spearheaded data analysis for new admissions using **Python and SQL**, resulting in recommended strategies that forecasted a 12% increase in the admissions process.
- Conducted **15+ workshops** and training sessions on **Python programming and data analysis techniques**, enhancing student's technical skills and confidence in handling complex data tasks.

**SOFTWARE ENGINEER | TATA CONSULTANCY SERVICES, BANGALORE, INDIA**

July 2021 – August 2023

- Developed the **TCS ADD Safety platform**, providing backend management and advanced solutions in collaboration with AstraZeneca. Used **Python, Flask, PostgreSQL, and Apache Airflow** to improve DAG and API performance, resulting in a **~10% increase** in requirement collection and a **~20% reduction** in onboarding time.
- Created 10+ robust **RESTful API endpoints** to enhance flexibility for the Kearney Commodity Cockpit. Streamlined MySQL performance with efficient **stored procedures and SQL queries**, achieving a **~30% reduction** in query execution time and overall system efficiency improvements.
- Redesigned frontend components and screens for **TCS' Enterprise Rights Management Solutions** using **HTML, CSS, JavaScript and Angular**, resulting in a **~20% increase** in modularity, **~25% faster** user task completion, and a 15% boost in engagement through responsive design practices in collaboration with the UI/UX team.

**SOFTWARE ENGINEERING INTERN | TATA CONSULTANCY SERVICES, KOLKATA, INDIA**

March 2021 - June 2021

- Implemented **python code** to enhance content and wording prediction accuracy for evaluating student summaries by 15% and 12% through **advanced data cleaning and transformation techniques**.
  - Utilized **SQL scripts** to perform efficient data extraction and transformation, implementing optimization strategies such as **indexing, query refactoring, and partitioning** to significantly enhance overall analysis performance and reduce processing time.
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## ACADEMIC PROJECTS

**Exploring Song Traits for Success (Python | Numpy | Pandas | Data Science | Data Visualization | Feature Engineering):**

- Processed and analyzed a 2.5M+ row music dataset using APIs, performing data visualization,
- Evaluated multiple ML models (Logistic Regression, XGBoost, K-NN, Random Forest, SVM) with an average accuracy of 76%.

**A Smart Stick For Visually Impaired People Using Raspberry Pi (Python | SQL | Raspberry Pi):**

- Addressed real-world accessibility challenges for over 50 visually impaired users by employing Raspberry Pi and SQL, reducing development costs by 30%.

**Health Assistant Oppy (Python | SQL | NLP):**

- Built a wellness chatbot using SQL, Python, and NLP for emotion analysis, fitness tracking, health tips, and medication reminders.
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## TECHNICAL SKILLS AND CERTIFICATIONS

- **Languages:** SQL, Python, JavaScript, C++, C, HTML5, CSS.
- **Databases/Data Warehouses:** BigQuery, MYSQL, PostgreSQL, Neo4j, Snowflake.
- **Frameworks/Tools:** Terraform, Tableau, Power BI, Lucid Charts, GCP, Apache Airflow, Azure, GIT, Postman, REST APIs.