PRABHDEEP SINGH

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EDUCATION

2024 - 2026
THAPAR UNIVERSITY

- Master of Computer Applications

2021 - 2024
CHITKARA UNIVERSITY

- Bachelor of Computer Applications
- GPA: 9.0 / 10.0

LANGUAGES

- C++
- Java
- React Native
- Python / ML
- MongoDB
- Swift
- Qiskit

Tools & Technologies

- Git & GitHub
- Docker
- Jupyter Notebooks
- AWS

PROFILE SUMMARY

Dedicated problem solver who has a keen understanding of the complexities of the quantum realm. I enjoy analysing complex problems and coming up with beautiful fixes, since I have an insatiable curiosity about the world. I am also passionate about patents by focusing on real-life problems. I am committed to pushing the limits of what is feasible in science and technology and have a solid background in quantum physics as well as a track record of using cutting-edge problem-solving strategies. I'm eager to join a team that is as enthusiastic as I am about unravelling the secrets of the quantum cosmos by bringing my analytical mentality and unlimited energy.

WORK EXPERIENCE

International Tractors Limited JAN 2024- JUN 2024
React Native Application Developer (SUMMER INTERNSHIP)

- Developed a React Native application for Sonalika (International Tractors Limited) to automate their document approval process.
- Led the development and implementation of key software solutions, improving workflow efficiency and process automation.
- Successfully launched and managed cross-platform applications, ensuring seamless user experience and system integration.

Chitkara University JAN 2022- DEC 2024
Research Scholar

- Throughout my tenure as a research scholar, I conducted extensive investigations into the theory and practical applications of quantum teleportation, contributing to the advancement of this pioneering field.
- I had the opportunity to collaborate with esteemed physicists and researchers, actively engaging in experiments and theoretical studies related to quantum teleportation, thereby expanding our understanding of its underlying principles.
- I have tried adding new flexibility to the groovers algorithm.

PATENTS

- EARPHONE WITH AUTO ON AND OFF PROVISION THROUGH MONITORING BRAIN SIGNALS (Utility)
  Application Number- 202211056467

- DEVICE AND METHOD FOR DETECTING THE INFECTION STATE OF HAIR (Utility)
  Application number- 202211071205

- WEARABLE DEVICE AND METHOD FOR GENERATING SOUND OF ANKLET BELL (Utility)
  Application number - 202311034419

- COLOR BLIND AND MULTIUSABLE ELECTRIC TOOTHBRUSH (Utility)
  Application number- 202311085535

(https://iprsearch.ipindia.gov.in/PublicSearch/PublicationSearch/ApplicationStatus) by filling out above application number.]

PROJECTS

- Project: "Pindpal" - AI-Powered Agrotech Advisory Chatbot

  - Architected and developed "Pindpal," an AI/ML-powered chatbot designed to bridge the information gap for farmers by providing real-time, localized agricultural advice.
  - Implemented a Natural Language Understanding (NLU) pipeline using Python and the Rasa framework, capable of processing queries in multiple languages (English and Punjabi) to ensure broad accessibility for the target user base.
  - Integrated live weather APIs and geographical data to deliver dynamic, context-aware recommendations on crop management, irrigation schedules, and potential pest threats specific to the farmer's location.
  - Trained the model on a custom dataset of over 50 distinct farming intents, resulting in a conversational tool that accurately answers complex queries and provides actionable guidance, creating a powerful proof-of-concept for improving agricultural decision-making.

- Project: "Safe Steps" - Safety-First Mobile GPS Navigation App

  - Conceptualized and developed "Safe Steps," a full-stack mobile application using React Native and Node.js, designed to redefine personal safety by providing the safest walking routes instead of just the fastest.
  - Engineered a custom routing algorithm that aggregates and processes diverse datasets, including historical crime statistics from public APIs and real-time, user-reported incidents, to generate a dynamic "Safety Score" for every potential path.
  - Implemented an intuitive user interface with the Mapbox API to clearly visualize safe (green), moderate (yellow), and high-risk (red) routes, empowering users to make informed decisions about their personal security.
  - Resulted in a fully functional prototype where the core algorithm successfully generated routes that bypassed over 80% of identified high-risk zones, offering a vital alternative to conventional navigation and demonstrating advanced skills in algorithm design, data analysis, and mobile development.

- Project: "Jarvis" - Voice-Activated Personal AI Assistant

  - Developed a multi-functional personal AI assistant in Python to enhance productivity by automating routine digital tasks through voice commands.
  - Integrated third-party APIs (e.g., Wikipedia, weather services) and utilized speech recognition and text-to-speech libraries to enable the assistant to dynamically answer queries and provide real-time information.
  - Engineered custom modules to execute system-level commands, such as setting reminders, launching applications, and controlling computer settings, successfully automating over 15 common user actions.
  - Created a hands-free tool that reduced the time spent on manual tasks.

- Project: "MoneyZold" - Secure Fintech Web Platform

  - Architected and developed "MoneyZold," a full-stack fintech web platform using the MERN stack (MongoDB, Express.js, React, Node.js) to provide users with intuitive tools for financial management and advisory.
  - Engineered a secure RESTful API with JWT-based authentication and end-to-end encryption, ensuring the confidentiality and integrity of sensitive user financial data, a critical requirement in the fintech sector.
  - Integrated the Plaid API to enable secure linking of bank accounts, and utilized Chart.js to create a responsive dashboard that visualizes spending habits, budgets, and net worth for users.
  - Delivered a fully functional prototype that demonstrates the ability to build secure, scalable financial applications, providing a user-centric solution designed to enhance financial literacy and personal financial control.

- Project: "Recipe Wizard" - Intelligent Recipe Generation Application

  - Architected and launched "Recipe Wizard," a full-stack web application designed to combat food waste and simplify meal planning by generating recipes from user-provided ingredients.
  - Developed a Python and Flask backend featuring a smart matching algorithm that queries and ranks recipes based on ingredient availability, offering substitution suggestions for missing items to maximize options.
  - Integrated the RESTful API to access a database of over 1,00,000+ recipes, and built a responsive React frontend that allows users to filter results by diet (e.g., vegetarian, gluten-free), cuisine, and cooking time.
  - Resulted in a highly practical tool that provides instant meal inspiration, capable of reducing decision-making time and helping users make the most of their available food, showcasing strong skills in full-stack development and API integration.

- Internship Project: "S-ONE" - Enterprise Document Approval App

  Client: International Tractors Limited (ITL)
  - Developed "S-ONE," a cross-platform mobile application using React Native, during an internship at International Tractors Limited (ITL) to digitize their paper-based document approval system and eliminate operational delays.
  - Engineered a multi-step approval workflow with role-based access control (employee, manager), enabling users to upload documents, track their status in real-time, and digitally approve or reject submissions on the go.
  - Implemented secure document handling by integrating with AWS S3 for file storage and utilized Firebase Cloud Messaging (FCM) to send instant push notifications to relevant managers, ensuring prompt action.
  - The resulting application demonstrated the potential to reduce the average approval cycle time by over 60% (from days to hours) and create a transparent digital audit trail, receiving positive feedback from management for its direct impact on business efficiency.

- Project TESS: Autonomous AI Desktop Automation Engine

  - Architected "Project TESS," a next-generation desktop AI assistant, evolving from a previous command-based project ("Jarvis") to handle complex, multi-step tasks with contextual awareness and adaptability.
  - Integrated a fine-tuned Large Language Model (LLM) for advanced Natural Language Understanding, enabling TESS to deconstruct and execute chained commands across multiple applications.
  - Implemented a computer vision module using OpenCV and pyautogui to allow the AI to visually identify and interact with on-screen GUI elements, overcoming the limitations of API-only automation and enabling universal application control.
  - Resulted in an autonomous agent that expanded automation capabilities by over 300% compared to the initial prototype, successfully performing complex workflows and demonstrating proficiency in building agentic AI systems, ML model integration, and computer vision.

ONGOING PROJECTS

- Writting Research paper on the Quantum Computing
- Working on 2 more utility patents
- Learning Android/ IOS using React Native