ABHAY SINGH THAKUR

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EDUCATION

Rutgers University **Jan 2024 – Present**
Master of Science in Computer Science *New Brunswick, NJ*

Purdue University **Aug 2019 – Aug 2023**
Bachelor of Science in Computer Science and Data Science *West Lafayette, IN*
Dean's List and Semester Honors (Fall 2019, Spring 2020, Fall 2020)
Concentration: Cybersecurity and Machine Intelligence
Relevant Coursework: Systems Programming, OOPS, DSA, Machine Learning, Data Mining, Database Design, Cryptography, Agile Methodology

TECHNICAL SKILLS

Languages: Python, C/C++, Java, Go, Rust, Ruby, R, SQL, Assembly (x86, ARM), Shell Scripting (Bash), JavaScript
Dev Tools & Libraries: GitHub, Jira, Vim, VS Code, RStudio, MySQL, SAS, Terraform, Ansible, scikit, Tensorflow
Frameworks: Tailwind CSS, React, Next.js, AWS, Django, GraphQL, MongoDB, Tableau, Docker, Kubernetes, web3

EXPERIENCE

Technical Intern | *Pacific Northwest National Lab (US Dept. of Energy)* – Richland, WA **Jun 2022 – Oct 2022**
- Automated resource-provisioning pipeline by writing Terraform and Ansible scripts to deploy network and compute devices in a large-scale environment up to 3x faster than existing manual procedure saving 130+ person hours annually
- Deployed and documented testbeds on highly secured on-premise intranet to simulate cyber threat scenarios which helped in efficiently utilizing allocated resources
- Minimized network infrastructure storage costs by using infrastructure-as-code tools which also helped in dealing with finer functional requirements

Graduate Teaching Assistant | *Rutgers University* – New Brunswick, NJ **Aug 2024 – Present**
- Conduct graduate-level Data Structures and Algorithms course for 40+ master's students, delivering in-depth lectures and facilitating discussions on advanced topics such as dynamic programming, graph theory, and algorithmic complexity
- Hold weekly office hours and help sessions, assisting 20+ students per week with complex problem-solving, coding assignments, and theoretical concepts, improving overall class performance and engagement

Undergraduate Teaching Assistant | *Purdue University* – West Lafayette, IN **Aug 2021 – May 2023**
- Developed course curriculum, graded assignments for 200+ students for CS 251(Data Structures and Algorithms)
- Conducted 3+ weekly office hours to resolve student queries and help students with assignments

ACADEMIC PROJECTS

Purdue Circle | *GraphQL, next.js, TailwindCSS* **Jan 2022 – May 2022**
- Created a social media and networking app for Purdue students as part of an Agile team
- Constructed a pipeline to feed user queries processed by next.js into a headless GraphQL CMS to minimize response payload size by 60% and served them using TailwindCSS on multiple platforms
- Modeled a popularity engine with 73% accuracy and employed features such as user posts, timelines, direct messaging, and reactions to ensure content is socially curated and promoted exclusively by users

Movie Magpie | *React, Material UI, Firebase* **Jul 2021 – Aug 2021**
- Built a movie recommendation system with accuracy 78% based on user-defined parameters such as movie genre, release dates, ratings and popularity, utilizing API calls made over a database consisting 10k+ movies
- Added CRUD functionality using Google Firebase to provide users with features such as saving recommendations, creating user profiles and provide feedback on accuracy of predictions

MyShell | *C++, Flex, Bison, Bash* **Mar 2021 – Apr 2021**
- Implemented functionality from bash and csh to build a shell interpreter using C++ which supports 10+ features such as autocomplete, command history, environment variables, support for subshells, etc
- Integrated Flex as scanner generator and Bison as parser generator for implementing shell grammar

NASA International Space Apps Challenge 2020 | *Tensorflow, Tableau, Excel* **Sept 2020 – Oct 2020**
- Tackled the 'Spot that Fire v3' challenge by creating a fire recognition system trained on 1M+ live dataset by NASA
- Devised a prototype app to notify dangerous fires nearby with an accuracy of 82% and visualized a dashboard on Tableau to spread awareness of wildfires

Find My Bike | *Android Studio, Google Maps Platform* **Sept 2019**
- Developed an Android app to help locate lost bikes on college campuses using Google's Geolocation API and Maps SDK
- Designed a UI that provided users with an interactive map which helped them navigate back to lost bikes
- Incorporated support for over 50k+ queries per day with an error rate of less than 12%