RAMAPRIYA RANGANATH

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EDUCATION

M.S in Computer Science, University of Wisconsin-Madison — Sept 2022 – May 2024

Major : Computer Science ; TA: Algorithms, Databases, Foundation of Mobile Systems and Applications

B.E.in Computer Science, PES University — *Aug 2014 - May 2018*

PROFESSIONAL EXPERIENCE

Blendnet, Microsoft Research

- Spearheaded the BlendNet project, overseeing the development of an end-to-end last-mile infrastructure initiative.
- Implemented a scalable, location-based content-sharing network as part of the project deployment.
- Significantly enhanced the success rate from 8% to 98% through systematic debugging and in-depth analysis.
- Conducted ethnographic data collection via pilot studies to inform and optimize project parameters.
- Collaborated with a media house for the extensive deployment of the project, reaching over 10 million users.

The Massively Empowered Classroom (MEC), Microsoft Research

- Automated problem generation and solutions, developed algorithms for assessing questions based on automata state complexity.
- Engineered an algorithm capable of distinguishing adept annotators from potential malicious users, thereby enhancing overall effectiveness.
- Integrated the MEC project onto Azure to ensure broader accessibility.
- Transformed research findings into a cross-platform application compatible with iOS and Android platforms.
- Successfully implemented the application in universities across India, collaborating closely with distinguished researchers from Microsoft Research and IISc.

mHealth Application for Medication Management

- Applied HCI principles to IoT for seamless identification and management through sensing devices.
- Responded to the evolving medical landscape by extending critical care monitoring to patients' homes.
- Defined mHealth within an HCI context, aligning mobile computing, medical sensors, and communication technologies.
- Designed a user-centric wearable prototype integrating a pulse sensor for personalized health monitoring.
- Implemented an intuitive real-time data transmission flow to enhance user experience on Android and iOS apps.
- Emphasized the HCI-driven goal of preventing medication errors and improving efficiency in medical health systems.

Rootkit Sentinel, University of Wisconsin Madison

- Engineered a High-Performance Distributed File Transfer System, attained unprecedented data transfer speeds by tactically utilizing TCP/IP, UDP, and RDMA protocols.
- Fine-tune performance and integrate proactive network security measures. Rootkit Sentinel for heightened network resilience and as a deterrent against intruders.
- Implemented a multi-layered defense mechanism addressing threats such as DDoS attacks and IP spoofing.
- Established a dual-pronged security approach, incorporating autonomous countermeasures and targeted data wipe in the event of unauthorized access.

Samaritan

- Engineered Samaritan, a specialized language model tailored for Dark Web investigations.
- Conducted pre-training on Dark Web data, incorporating advanced capabilities in voice input and output.
- Meticulously curated training data, considering lexical and structural diversity for comprehensive model training.
- Utilized qualitative analysis to showcase Samaritan's superiority over baseline and other language models.
- Established its proven effectiveness across diverse use cases, positioning it as a pivotal resource for Dark Web research.
- Performance assessment highlighted Samaritan's efficacy in detecting underground activities and effectively addressing cyber threats

IoT Green Corridors for Emergency Vehicles

- Architected an IoT system prioritizing dependability and cost-effectiveness, addressing heat dissipation, power consumption, packet integrity, and transmission latency.
- Implemented a working model featuring an intuitive online dashboard.
- Conducted rigorous testing, and received endorsement from the Indian Institute of Science (IISc) to validate the solution's robustness.
- Recognized at the International Conference on Ambient Systems, Networks, and Technologies, and achieved success in MIT Grand Hack and IoT World Congress

PUBLICATIONS

- SuperNet . In Proceedings of the SIGCHI conference on Human factors in computing systems
- Samaritan: Unleashing Limitless Intelligence through Advanced AI, . In Proceedings of the SIGCHI conference on Human factors in computing systems
- IoT Green Corridor The 10th International Conference on Ambient Systems, Networks and Technologies (BESTPAPER)
- Automatically Generating Theory of Computation Problems with Optimal Solutions." Workshop Paper ICER(2019)
- Heart Rate Monitoring System. SIGCHI conference on Human factors in computing systems

TECHNICAL SKILLS

- **Programming:** Python, Node JS, R, C, Java, Html, CSS, Java Script, PHP, C#, Angular JS, ReactJS, Rust, Perl, SQL ,GO, vue.js,Data Structure and Database, Database, NoSQL
- **Certificates:** Google Data Analytics, Google Program Management, Google Android App Development, Google UI/UX

HONORS & AWARDS

- Selected to Organize Workshop in Ambient Networks and Systems 2023
- Finalist in MIT Grand Hack 2023, IoT World Congress, Intel Grand Hack 2020, MadHacks 2023
- Winner in IIM-B Shark Tank, Arm Hackathon 2020