

# Prachotan Reddy Bathi

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## EDUCATION

- University of Southern California** (Honors Expected) Los Angeles, California  
*MS in Computer Science GPA: 4.00/4.00* January 2023 – December 2024
- Coursework: **Multimedia Systems, Autonomous Cyber-Physical Systems, Operating Systems**, Requirements Engineering, Analysis of Algorithms, Database Systems
- Manipal Academy of Higher Education** (Merit Scholarship) Manipal, India  
*Bachelors of Technology in Computer Science and Engineering GPA: 9.3/10* August 2018 – July 2022
- Honors credits:** Adv. Cryptography, Cryptanalysis, Adv. Database Systems, Computer Networks, **Embedded Systems**

## WORK EXPERIENCE

- University of Southern California** Los Angeles  
*Course Producer (Graduate Teaching Assistant)* January 2024 – Present
- Aided Prof. Saty Raghavachary in delivering CSCI 572: Information Retrieval & Web Search Engines, a challenging graduate course exploring the theoretical and practical underpinnings of search engine design and implementation.
- Diversity Coordinator (Office of Inclusion and Diversity)* January 2024 – Present
- Leading evidence-based initiatives, driving impactful training, and spearheading community-driven projects. Blending innovation with proven strategies, shaping a culture of inclusion and making a tangible difference.
- Webmaster & Technology Consultant* February 2023 – Present
- Revolutionized web apps for Rossier School of Education's research teams, driving functionality and user experience.
  - Led interdisciplinary collaborations, employed advanced product management tools (roadmaps, feature prioritization, cost-benefit analysis) for strategic planning, and liaised with external providers to optimize technology solutions.
  - Key Achievement:** Migrated the Pullias site, boosting search-driven traffic by 33% and accessibility satisfaction by 24%.
- Wells Fargo** India  
*Program Associate (Software Engineering)* January 2022 – December 2022
- Engineered market risk software tools within the Vasara project, leveraging micro-services architecture for heightened scalability and efficiency in capital markets' risk management.
  - Pioneered integration of Mockito framework, optimizing testing for transformer classes and reducing build blockers by 40%.
- Rady Faculty of Health Sciences, University of Manitoba** Winnipeg, Canada  
*Research Engineer & Technical Lead (Globalink Research Intern Award)* May 2021 – January 2022
- Led a team of four engineers in developing a web app that processes video data, associating tags to deliver empathy scores.
  - Conducted usability studies and refined the "In Your Shoes" project (React, Django, MongoDB, AWS S3) based on user video feedback, achieving a highly usable minimum marketable product.

## CURRENT PROJECTS

- Weenix Operating System** | [Link](#)
- Engineered a UNIX-based OS kernel in C, showcasing expertise in fundamental operating system components, including processes, threads, virtual file systems, and virtual memory.
  - Boosted efficiency through custom system calls, demonstrating ability to tailor functionalities for optimized performance.
  - Implemented a cutting-edge copy-on-write mechanism via shadow objects, showcasing a commitment to resource optimization and contemporary OS design principles.
- Adaptive Cruise Controller** | [Link](#)
- Developed and implemented a PID controller for adaptive cruise control (ACC) in a simulated CARLA environment
  - Implemented multilayered Deep Neural Network (DNN) with YOLOv3 for image segmentation and distance prediction with a 98% accuracy on test dataset.
  - Leveraged high-performance computing nodes to accelerate development and simulation of the system
- Autonomous Stormwater Controls with Real-Time Pollutant Control** | [Link](#)
- Leveraged deep reinforcement learning (DDPG) and control systems to seamlessly integrate stormwater models, enabling autonomous controls that prioritize real-time pollutant handling (decrease by 56% compared to rule-based control) and minimize flooding risks.
  - Conducted rigorous testing and evaluation, including STL requirements and reachability analysis, to ensure the system's robustness, safety, and reliability.

## KEY PUBLICATIONS

1. Bathi, P. R., & Deepa, G. Health Data, Social Media, and Privacy Awareness: A Pilot Study. In ICICICV 2022 (pp. 635-646). Singapore: Springer Nature Singapore. (10.1007/978-981-99-2602-2.48)

2. Bathi, P. R., Ellis, R., Liang, Y., & Jejal, B. Cyber-Physical Robustness Assessment of Stormwater Controls with Real-Time Mechanism for Smart and Sustainable Urban Water Resources Management. In EWRI ASCE 2022 (10.1061/9780784484258.072)
3. Lobchuk, M., Bathi, P. R., Ademeyo, A., & Livingston, A. (2022). Remote moderator and observer experiences and decision-making during usability testing of a web-based empathy training portal: content analysis. JMIR Formative Research, 6(8), e35319.(10.2196/35319)
4. Lobchuk, M., Hoplock, L., Harder, N., Friesen, M., Rempel, J., & Bathi, P. R. (2023). Usability Testing of a Web-Based Empathy Training Portal: Mixed Methods Study. JMIR Formative Research, 7, e41222.(10.2196/41222)

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## SKILLS

**Languages & Frameworks:** C/C++, Python, Java, L<sup>A</sup>T<sub>E</sub>X, Bash, SQL, Django, React, Angular

**Developer Tools:** Git, Jenkins, Jira, Confluence, Figma, Postman, GDB, Putty, AWS (S3, E2), Azure, WireShark

**Other:** Arduino, pSoC, Network Simulation (GNS3), Formal Specifications, Kernel & Embedded (LPC1768), Project Management

**Research:** Usability and User Testing, Survey Design, Focus Groups, Heuristic Evaluation, Literature Review, Manuscript Writing

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## PAST RESEARCH PROJECTS

### Cyber-Physical Systems Robustness Assessment

*Collaboration with Dr. Yu Liang, University of Tennessee at Chattanooga*

*August 2021 – November 2021*

- Assessed cyber-physical security and robustness of civil infrastructure.
- Identified 16 points of compromise in urban stormwater management involving real-time control based on literature review and components of planning project.

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## LEADERSHIP & INVOLVEMENT

- Led business development and strategy at **LISUS**, an LA based sustainable lithium mining startup, laying the roadmap for its growth and impact. Involved market analysis, product lifecycle management, sales, and pricing options research.
- Guided and inspired 8 graduate students as **Mentor** and **Orientation Leader** at USC's Viterbi School of Engineering.
- **HackSC'23**, Southern California's official hackathon. Designed and built *cFood*, a health-conscious social media for food.
- Steered cybersecurity and data privacy efforts as **Head of Research** and Treasurer at (**MIST**).
- Secured a top 10 position in the prestigious Cisco SecCon **CTF** 2020.
- Fueled *Zolve's* global growth through credit awareness, feedback, and dynamic marketing as a campus ambassador.
- Represented Coursera as a campus ambassador, fostering educational excellence within the university community.
- Contributed to child health and education as a volunteer for Yes We Can, a non-profit organization.
- Demonstrated leadership as a Corporal in the National Cadet Corps (NCC) while fostering discipline and teamwork.

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## TALKS & PRESENTATIONS

- Risk and Reporting Tools, a Story of How We Support the Risky Markets, presentation at Wells Fargo during Market Square 2022, showcasing expertise in financial regulatory insights and supporting technology solutions.
- Engaged in a thought-provoking Fireside Chat on 'Usable Security: An Important Dimension' at Manipal Information Security Team (MIST), illuminating key cybersecurity concerns and solutions.
- Took stage with 'Data Privacy 101,' an influential talk orienting students on critical aspects of privacy risks and necessities.
- Secured "Best Presentation" with 'Computers with a Cause' in the MyPCMyStory summit organized by Dell Inc., presenting a compelling vision for the role of technology in social impact initiatives.

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## ENTREPRENEURIAL EXPERIENCE

**LinePine** | [linepine.prachotanbathi.com](https://linepine.prachotanbathi.com)

- Founded and serve as the principal instructor at LinePine Tech, empowering young minds through Hour of Code events while spearheading course planning and syllabus design for computer literacy.

**PurSeek Tech**

- Established PurSeek Tech, dedicated to enhancing digital presence of 15 small and emerging businesses through cost-effective website solutions, fostering their growth and success
- Empowered 25 high-school youth in rural India by imparting essential web development skills through PurSeek Tech, enabling them to carry forward this noble mission and stimulate economic development within their communities.

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## CERTIFICATIONS

**Azure AZ-900 Certification**, Microsoft; **Project Management Certification**, Google; **Specialization in Big Data**, UC San Diego; **Interaction Design Specialization**, UC San Diego