

Zeeshan Ahmed

Software Engineer. Experienced in Agile-driven Full-stack Web Development and Database Modeling. Python, React, MySQL.

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EXPERIENCE

VIDIUM ANIMAL HEALTH | SOFTWARE ENGINEER

Jan 2022 - present | Scottsdale AZ, USA

- Designed and developed the Knowledgebase, a MySQL database deployed on AWS RDS, with curated data of over 4000 canine biomarkers
- Developed VariantDB, a large-scale genetic mutation database for canine cancer research containing data about over 12000 genetic mutations
- Deployed a full stack web application to interface VariantDB, and facilitate querying and data analysis, using Django, MySQL and JavaScript
- Developed a full stack web-app for the Knowledgebase using React and Node.js
- Streamlined the data curation process by development of CurationDB, an in-house database containing data from cBioPortal, CGC and OncoKB
- Developed DeerMouse, an inter-species protein alignment web app, to visualize amino acid sequence differences between humans and dogs
- Optimized DeerMouse, resulting in a 60% reduction in report generation time
- Automated sales pipeline in Salesforce and integrated with an external Lab Information System (LIMS) API to track 1000s of orders per month
- Analysed the quality of curated data from LLMs and compared that with expertly curated data to report the quality and accuracy of data
- Developed Geneserver, a web application to provide expanded gene and variant summaries and associated biomarker evidences

IIHR, U. OF IOWA | GRADUATE RESEARCH ASSISTANT

May 2021 - December 2021 | Iowa City IA, USA

- Developed a JavaScript library for Water Information System, allowing users to build their customized water information systems
- Optimized the codebase with modular components for map, UI panels, and core services
- Designed and implemented an offline mode feature for the Iowa Flood Information System to improve user experience
- Implemented lazy loading of javascript resources, reducing page load-time by nearly 20%

COMPUTATIONAL LOGIC CENTER, U. OF IOWA | GRADUATE RESEARCH ASSISTANT

Jan 2021 - April 2021 | Iowa City IA, USA

- Developed Phoenix, a versatile method to detect n-day cellular network control-plane vulnerabilities and operator mispractices from device standpoint
- Implemented Phoenix as an Android app that can identify 15 n-day vulnerabilities in 4G communication using lightweight signature verification techniques
- Monitored and reported vulnerabilities on devices running 4 US Cellular Networks using monitors based on DFA, Mealy Machines (MM) and PLTL
- Analyzed the overhead power consumption of network monitors like DFA, MM and PLTL to report the most optimal configuration for Phoenix
- Co-authored a paper on Phoenix, that was published in NDSS '21

SKILLS

PROGRAMMING

Proficient:

Python • Apex • SQL • Java • Bash • MATLAB • HTML • CSS • JavaScript • TypeScript

Experienced:

C++ • C • L^AT_EX • Go • R • PHP

Familiar:

Assembly • Rust • Perl • C#

LIBRARIES & FRAMEWORKS

Django • ReactJS • NextJS • Svelte • Ruby on Rails • jQuery • NodeJS • Express • Tailwind • Kubernetes • React Redux

TOOLS & PLATFORMS

Git • MySQL • MongoDB • PyTorch • SciKit • Apache • Nginx • Wordpress • Docker • Selenium • GraphQL • LWC • Android Studio • AWS • Firebase • Linux • Maven • Eclipse IDE

TECHNICAL STRENGTHS

Microservices • REST APIs • Database Modeling • Salesforce Development • CI/CD • Machine learning • Cloud Computing

EDUCATION

UNIVERSITY OF IOWA

MASTER OF COMPUTER SCIENCE

Jan 2020 - December 2021 | Iowa City, IA

Topics: Software Engineering, Machine Learning, Cloud Computing, Algorithms

UNIVERSITY OF ENGINEERING AND TECHNOLOGY

BACHELOR'S IN ELECTRICAL

ENGINEERING

Aug 2013 - May 2017 | Lahore, Pakistan

PROJECTS

SCIENCE ALLIANCE PORTAL | SOFTWARE ENGINEERING PROJECT, SPRING '21

- Developed a web application using Django and MySQL, to facilitate Iowa Bioscience Academy in recruiting/managing the Science Alliance members
- Developed an event management system to invite/sign up members for the events
- Designed and developed the Login and Sign up web pages, as well as the front-end UI of the landing page and dashboard
- GitHub Repository: <https://github.com/zshanahmed/SAP>

ONLINE CARD TRADING GAME | SOFTWARE ENGINEERING LANGUAGES & TOOLS, FALL '20

- Developed a Web-based multiplayer game, that allows friends/family to play card games based on their own rules, using Ruby on Rails with a MySQL database
- Developed a session sharing mechanism allowing users to invite/join games in separate rooms and integrated a score-card to enable competition
- Implemented third party authentication using OAuth to streamline login/signup process to allow login with Facebook and Twitter
- GitHub Repository: <https://github.com/zshanahmed/CardsHQ>

DISASTER ASSISTANCE SYSTEM | FUNDAMENTALS OF SWE, SPRING '21

- Developed a request-response based web application to help users manage resources in disasters, using React, Node.js, and MySQL
- Introduced a request feature that enables disaster victims to solicit resources from nearby donors through the web application.
- GitHub Repository: <https://github.com/zshanahmed/dams>

PUBLICATIONS

- **PHOENIX: Device-Centric Cellular Network Protocol Monitoring using Runtime Verification** (NDSS '21)
Mitziu Echeverria, **Zeeshan Ahmed**, Bincheng Wang, M. Fareed Arif, Syed Rafiul Hussain, Omar Chowdhury
- **Standing in the Canine Precision Medicine Knowledge Gap: Improving Annotation of Canine Cancer Genomic Biomarkers through Systematic Comparative Analysis of Human Cancer Mutations in COSMIC** (VCO '23)
Sharadha Sakthikumar, Salvatore Facista, Derick Whitley, Sara A. Byron, **Zeeshan Ahmed**, Manisha Warriar, Zhanyang Zhu, Esther Chon, Kathryn Banovich, David Haworth, William P. D. Hendricks, Guannan Wang

REFERENCES

David Haworth

President, Vidium Animal Health

William Hendricks

Chief Scientific Officer, Vidium Animal Health

Sharadha Sakthikumar

Cancer Genomics Scientist, Vidium Animal Health

Zhanyang Zhu

Sr. Director of Bioinformatics, Sampled

Kenneth Day

Head of Research and Development, Vidium Animal Health

Ibrahim Demir

Associate Professor, University of Iowa