

# Janine S. Huang

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## EXPERIENCE

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- **NASA Jet Propulsion Laboratory** Pasadena, CA  
*Software Engineer* *May 2022 - Present*
  - **AOCS/OCS Software Developer**
    - \* Built a Node.js REST API for Europa Clipper and Perseverance Rover to reliably and securely index, store, and retrieve science data collected from Jupiter's moon and Mars in AWS cloud for real-time operations.
    - \* Tech Lead for 6 development cycles (approx. 3 months); Led a high-impact engineering team to rapidly deliver user-driven features – prioritizing, mentoring, and shipping with precision.
    - \* Write and automate full unit, integration, and permission test suites for 3 (Python, Javascript, and Bash) clients for TestRail software requirement mapping export.
    - \* Collaborate with partnering subsystem leads to partner on Infrastructure as Code (IaC) practices, ensuring consistent deployment standards across microservices.
  - **DOM Ground Data System (GDS) Engineer**
    - \* Maintain and improve 30-year-old mission-critical data management infrastructure and operations, delivering reliable 24/7 support, enabling more than on average 25K daily CRUD operations per mission for 6 active missions worth over \$12 billion USD in total.
    - \* Lead and authored an overhaul of the previously manual testing framework, saving test engineers 40+ hours per release cycle of human output validation and system configuration.
  - **Mars Reconnaissance Orbiter Data Accountability Lead Engineer**
    - \* Lead and mentor a team of 4 engineers to monitor, detect, diagnose, and recover gaps in science telemetry via custom Python spacecraft retransmit command builds, data processing, and GDS troubleshooting
    - \* Provide critical support and data analysis for NASA science teams and universities to detect trends or anomalies in over 62 TB of data volume from Mars, 186 million miles from Earth.
    - \* Automated spacecraft instrument files submission, significantly reducing the number of necessary in-person shifts by 15 percent and increasing, saving the project over \$31k annually.
  - **AI-Assisted Document Improvement Engineer**
    - \* Develop a locally hosted RAG-based Document improvement Chatbot to detect and suggest improvements to internal documentation and procedures to increase clarity, readability, and ensure compliance with NASA standards.
  - **Cybersecurity Network Visualization WebApp Engineer**
    - \* Overhauled a cybersecurity 3D network map viewer, grouping 20+ related features for better usability and modular code based on user feedback.
  - **Mars Perseverance Rover 3D Visualization Engineer**
    - \* Design, implement, and test HUD overlay displaying live spacecraft altitude, velocity, and acceleration.
    - \* Robustify and improve exception handling for real-time 3D vector calculations from a live telemetry stream for the nationally televised Mars Entry Descent and Landing (EDL) visualization.

## SKILLS SUMMARY

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- **Languages:** Python3, C++, JavaScript/Typescript, Java, Perl, Bash, HTML5, CSS
- **Backend, Databases:** MySQL, PostgreSQL, AWS (including Cloud Formation, Lambda, Cloudwatch, S3, EC2, IAM, ECS, VPC, DynamoDB, SNS, SQS), Unity, Flask, FastAPI
- **AI, ML:** Ollama, Weaviate, HuggingFace, RAG, LangChain, Prompt Engineering
- **DevOps, Infrastructure:** Docker, Git, Github, JIRA, Serverless, Postman, TestRail, Pytest, CI/CD
- **Professional, Other:** Figma, CAD, Technical writing, Public Speaking, Fountain Pen and Ink Collecting

## PUBLICATIONS AND AWARDS

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- E. Newman, J. Huang, M. Pomerantz and J. Sellin, "Multi-Project Telemetry-based Digital Twin Environment for Space-Mission Development, Analysis, and Operations," 2023 IEEE Aerospace Conference, Big Sky, MT, USA, 2023.
- E. Newman, J. Sellin, J. Huang, C. Huang, M. Pomerantz and D. Celik, "Web-based 3D Visualization for Flight Mission Network Cybersecurity Analysis," 2023 IEEE 9th International Conference on Space Mission Challenges for Information Technology (SMC-IT), Pasadena, CA, USA, 2023.
- NASA Space Act Award 2024, MRO Team Award 2024, AWS Professional Certified Solutions Architect

## EDUCATION

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- Master of Science, Computer Science – University of California, Riverside, Class of 2022
- Bachelor of Science, Computer Science – University of California, Riverside, Class of 2021
- Bourns College of Engineering Commencement Speaker, ACM@UCR President