LORI A. NEWHOUSE

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PRODUCT DEVELOPMENT ENGINEER FOR PREDICTIVE MODELING

Business Driven Functionality | Machine Learning | Physics Based | Data Science | Value Generation | Flexible Development

Work with business leaders, end users, and other stakeholders to identify and articulate drivers for and benefits of computational functionality. Formulate requirement specifications and implementation plans. Maintain close contact with customers in order to adapt these as business needs evolve during product life cycle. Design, implement, test, and validate functionality. Provide user support and training for roll out. Deliver high quality products in timely and cost-efficient fashion. Core competencies:

Business Requirements | Customer Focused | Multidisciplinary Team | Product Life Cycle

Analytics | C++ | Python | scikit-learn | pandas | OOP | Scrum | Agile

PROFESSIONAL EXPERIENCE

SPRINGBOARD, Houston, TX 2020 to present
Machine Learning Engineer (student)
Pursuing career track certification with anticipated completion February 2021. Program includes 400 hours of hands-on course work with weekly 1:1 industry mentor oversight. Final capstone project is end-to-end involving data wrangling, model development, and web deployment.

Data Topics
- APIs, RSSs, web scraping, SQL, pandas, Dask.
- Cleaning and transformation at scale.

Modeling Topics
- Regression, classification, decision trees, neural networks, anomaly detection, recommendation systems.
- Process (selection, evaluation, validation) and tools (scikit-learn, SparkML, TensorFlow).
- Deployment at scale, cloud-based services, Docker, Hadoop.

GitHub Portfolio
- Mini-projects covering data and modeling topics above.
- End-to-end capstone project.

HALLIBURTON, Houston, TX 2007 to 2020
Technical Advisor - Engineering and Petrophysical Applications
Performed product development of commercial software to design and monitor coiled tubing well intervention jobs. Worked with business leaders to understand drivers and benefits. Prepared requirement, specification, design, testing, and user documents. Coordinated with customers during entire development cycle. Updated development activities as business needs evolved.

Data Scientist Certification
- Completed inaugural corporate training program (university based online courses; final project using actual engineering and maintenance data; 30 graduates).
- Proposed project was 1 of 3 selected for proof-of-concept funding by corporate technology.

Leadership and Teamwork
- Analyzed job site sensor data and identified situations where operation was not consistent with engineering best practices.
- Functioned as primary point of contact for field services champions specifying functionality needs of software features.
- Identified detailed requirements of inter-process and cross-platform communication for real time, automated control of jobs.
- Prepared functionality specifications and GUI mock-ups for application to manage cables installed in coiled tubing.
- Created specifications (calculations, GUI) for comprehensive functionality to design field engineering processes for removing various types of solid material from well using a variety of downhole tools.
- Specified testing requirements for variety of software modifications (calculations, GUI behavior, work flows).

Computational Modeling
- Submitted 2 US patent applications for use of real time calculations to manage and control job execution.

HALLIBURTON (Continued)

- Improved fluid tracking functionality: production from well, loss of treatment fluids, and fluid movement into formation.
- Enhanced moving grid procedures to handle downhole tools with diameter changes.
- Extended mechanical behavior model to handle downhole tools that do not bend and to include coiled tubing diameter and wall thickness changes due to plastic deformation.

Software Development

- Used standard source control procedures (check out and in, check-in builds, nightly builds, release builds, branching, merging).
- Followed scrum methodology (daily stand-ups, burn down, sprint planning, sprint reviews, code reviews, testing).

OBJECT RESERVOIR CORPORATION, Austin, TX 2002 to 2006

Petroleum Physics Engineer

Developed and supported software for finite element modeling of petroleum reservoirs in venture capital funded company.

Project Leadership

- Determined requirement and implementation details of functionality for opportunities identified by company leadership.
- Planned project scopes to fit customer needs and executive management specified delivery dates.
- Coordinated team of modelers and GUI developers by helping members understand functional requirements of all components.

Computational Modeling

- Designed and implemented calculations for reservoir initialization, fluid property correlations, and grid adaptivity.
- Provided guidance to other staff on flow, fluid, and well models along with interactions.

MISSION RESEARCH CORPORATION, Nashua, NH 1999 to 2002

Scientific and Engineering Technical Staff Member

Designed, implemented, and tested object-oriented framework to calculate atmospheric effects following nuclear burst.

EXXON PRODUCTION RESEARCH COMPANY, Houston, TX 1991 to 1999

Senior Research Engineer

Developed and supported reservoir simulation capabilities and rock property modeling. Activities included writing new programs, debugging and enhancing existing programs, troubleshooting simulation problems, and composing user guides.

Modeling of Physical Processes

- Designed, implemented, and validated black oil phase behavior model and Stone's fluid flow model for Exxon's next generation reservoir simulator.
- Developed and implemented phenomenological models of rock fracture behavior crucial to matching field performance of cyclic steam injection processes and to predicting long term oil recovery.
- Developed and implemented foam flow model enhancements essential to obtaining simulation match of field pilot tests.

Leadership and Team Work

- Served as computational modeler and program developer on teams composed of researchers, simulation users, geologists, and field operations personnel.

DATA SCIENCE TRAINING

coursera online classes
Aug to Oct 2019 (certificates available)

- Introduction to Data Science in Python
- Machine Learning Specialization
- Machine Learning Foundations: Case Study Approach
- Machine Learning: Regression
- Machine Learning: Classification
- Machine Learning: Clustering and Retrieval

other online classes (coursera, edx)
2020

- Applied Plotting, Charting, and Data Representation in Python
- Applied Machine Learning in Python
- Data Analysis with Python
- Computing in Python III: Data Structures

EDUCATION

- **Doctor of Philosophy (PhD), Master of Science (MS)**, Chemical Engineering, University of California, San Diego, CA
- **Bachelor of Science (BS)**, Chemical Engineering, University of Michigan, Ann Arbor, MI