Hans B. DeJong

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I am an aspiring software engineer with years of experience as an oceanographer and educator that allowed me to develop excellent analytical and communication skills. I recently attained a master's in the MCIT program from the University of Pennsylvania where I gained valuable experience and technical skills in distributed systems, databases, computer networking, web applications, cybersecurity, big data analytics, and artificial intelligence. I am seeking to combine my scientific and teaching experiences with my deepening understanding of technology to join a development team.

Education

University of Pennsylvania Dec 2022
Master of Computer and Information Technology (MCIT), GPA 4.0

Stanford University Jan 2018
PhD Environmental Earth System Science, GPA 4.05

Brown University May 2008
B.A Geology-Biology, GPA 3.9

Skills

Programming Languages
Java, Python, JavaScript, C, C++, Go

Web Technologies
HTML, CSS, React, Node.js, Express, D3.js, REST API, AJAX, Bootstrap, Material UI

Cloud
AWS (RDS, EC2, EMR), Firebase

Databases
SQL, MongoDB, Neo4j

Data Science
Apache Spark, Pandas, NumPy, Matplotlib, Scikit-learn, Apache MXNet

Tools
Git, Vim, Linux, JUnit, Docker, GNU Debugger

Projects

Quaero Search Engine Nov-Dec 2022

- Built and deployed a distributed Google-style cloud-based search engine that interacts with users via a frontend and returns relevant search results for user queries.
- Implemented a web server (Spark Java clone), key-value store, distributed analytics engine (Apache Spark clone), web crawler, and indexer from scratch in Java.
- In a team of four, deployed our components on multiple AWS EC2 instances to crawl and index hundreds of thousands of web pages and built a ranker using page rank, term frequency inverse document frequency, and phrase match.

Photo Sharing App Mar 2022

- Created a photo sharing application that supports all basic functionalities including the ability for users to log in and out, register, upload photos, comment on photos, like photos, and create a list of favorite photos.
- Built the frontend with React following the model-view-controller decomposition, implemented capabilities to fetch data from a server with AJAX, and set up the database with MongoDB.

FIFA World Cup App Feb-Apr 2022

- Developed a web application where users can view details about every World Cup match, search by player, team, and stadium, and gain insights such as top scorers and timing of goals.
- Cleaned and merged datasets from multiple sources and then designed and created SQL database that was deployed on AWS RDS.
- Designed and built the frontend using React and Material UI and queried the database using a REST API.

Automatic Water Sampler and Pumping System 2018

- Designed, built, and programmed autonomous submersible multiport water sampler and autonomous underwater pumping system.
- Deployed instruments on coral reefs to monitor coral reef health and calculate net growth rates.
- Published designs in the peer-reviewed journal *HardwareX*.

Professional Experience

Software Engineer Jun-Aug 2022

Stanford University

- Built part of the new learning management system for Code in Place, a free online Python course hosted by the Stanford computer science department.
- Created the login page and admin system to manage 1000 teachers and 10000 students worldwide.
- Designed and implemented a new user experience for the learning center, where instructors can add and edit course content such as videos and readings using a rich text editor.

Science and Computer Science Teacher 2018-2020

American International School Chennai, India

- Taught high school students the fundamentals of computer programming in Java.
- Collaborated with a Stanford computer science professor and designed my course off the first half of Stanford's CS 106A, *Programming Methodologies*, one of the most popular courses at Stanford.
- All students successfully built the game Breakout and completed a creative final project.

Postdoctoral Research Scientist 2018

Stanford University

- Designed, built, and tested autonomous instruments to study the impact of climate change on coral reefs across the Chagos Archipelago in the Indian Ocean.

Doctoral Candidate and NSF Graduate Research Fellow 2012-2018

Stanford University

- Build computer models, collected and analyzed field data, and processed large satellite-derived datasets to study the impacts of climate change on the Southern Ocean (Antarctica).
- Published 7 studies in top peer-reviewed journals.
- Presented findings at major conferences and volunteered as an expert reviewer for the journals *Nature Geosciences* and *Geophysical Research Letters*.