Hans B. DeJong, PhD

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Summary

I am launching a career change from earth science research to technology. I completed my PhD at Stanford where I designed, implemented, and managed complex projects through completion. My research involved computer modeling, remote sensing, and data analytics. I am currently pursuing a Masters in Computer Science at UPenn and am seeking an internship in software engineering.

Education

University of Pennsylvania 2023
Masters in Computer Science (MCIT), GPA: 4.0

- Courses: Introduction to Software Development, Mathematical Foundations of Computer Science, Introduction to Computer Systems, Data Structures and Software Design, Computer Systems Programming

Stanford University.
PhD Earth System Science, GPA: 4.1

- National Science Foundation Graduate Research Fellowship ($138,000)
- Courses: Statistical Methods in Engineering, Advanced Statistical Methods, Simulation Models, Vector Calculus

Brown University
B.A. Geology-Biology, GPA: 3.9

Skills

Programming Languages: Java, Python, C/C++, MATLAB, R, Arduino, SQL, HTML, CSS, JavaScript, Git, Docker
Data Science: Data wrangling, data visualization, model selection, uncertainty analysis
General: Project management and implementation, public speaking, technical writing, scientific literature synthesis

Projects

Automatic Sampler and Pump

- Designed and built autonomous submersible multiport water sampler and autonomous underwater pumping system that we deployed on coral reefs. Collaborated with research engineer on hardware and programmed the microcontroller.
- Designs published in 2 peer-reviewed journal articles.

Our Breathing Planet

- Built interactive data visualizations using HTML, CSS, and JavaScript for students to deepen their understanding of the carbon cycle by exploring expert-curated datasets.

Primate Evolution Explorer (in progress)

- Building a webtool using React where students can quickly find formatted gene sequences for primate species and genes of their choice (58 genes, 168 primate species).

Coursework Projects

- Implemented Merge Sort and QuickSort algorithms with Linked Lists in C++.
- Implemented an end-to-end file compression and decompression tool using Huffman coding.
- Wrote a program to find all the words on a given boggle board using recursive backtracking.
- Designed and developed a Java application to analyze Covid data using N-tier architecture.
- Built a reverse assembler in C that converts machine code into assembly.
- Implemented a shell in C; features include redirection and pipes.

Professional Experience

American International School Chennai, Chennai, India 2018-2020
High School Computer Science and Science Teacher

- Collaborated with Stanford professor to teach Computer Science course based on CS 106A, taken by over 1000 students at Stanford each year.
- Based on anonymous student surveys, >98% of my students agree with the following statements: I am encouraged to challenge and extend my learning; my teacher is kind and understanding towards me; my teacher models curiosity and passion for the subject matter.
- Head coach for High School Varsity Boys Soccer.

Stanford University, Stanford, CA 2012-2018
Postdoctoral Research Scientist (2018)

- Designed, built, and deployed underwater instrumentation across the Chagos Archipelago to monitor how remote coral reefs respond to climate change.
- Expert reviewer for *Nature Geosciences* and *Geophysical Research Letters*.

Doctoral Research Scientist (2012-2017)

- Built computer model to calculate air-sea CO_2 flux rates in the Ross Sea, Antarctica.
- Analyzed 10 terabytes of raw satellite data to identify frazil ice algal bloom hot spots around Antarctica.
- Led research program to determine ocean acidification state of surface waters in the Southern Ocean using high-resolution underway datasets.
- Measured $\delta^{18}O$ of seawater samples using mass spectrometry to quantify oceanic freshening near Antarctica from ice sheet melt.
- Presented at major scientific conferences and published research findings in top journals (>70 citations).

Publications

David A. Mucciarone, **Hans B. DeJong**, Robert B. Dunbar, Yui Takeshita, Rebecca Albright, and Keaton Mertz. Autonomous submersible multiport water sampler system. *HardwareX*, 2021.

David A. Mucciarone, **Hans B. DeJong**, and Robert B. Dunbar. Autonomous underwater pumping system. *HardwareX, 2020*.

DeJong, Hans B., Robert B. Dunbar, Evan A. Lyons. Late summer frazil ice algal blooms around Antarctica. *Geophysical Research Letters*, 2018.

DeJong, Hans B., and Robert B. Dunbar. Air-Sea CO_2 Exchange in the Ross Sea, Antarctica. *Journal of Geophysical Research: Oceans*, 2017.

Sarah K. Bercovici, Bruce A. Huber, **DeJong, Hans B.**, Robert B. Dunbar, and Dennis A. Hansell. Dissolved inorganic carbon in the Ross Sea: Deep enrichment and export. *Limnology and Oceanography*, 2017.

DeJong, Hans B., Robert B. Dunbar, David A. Koweek, David A. Mucciarone, Sarah K. Bercovici, and Dennis A. Hansell. Net community production and carbon export during the late summer in the Ross Sea, Antarctica. *Global Biogeochemical Cycles*, 2017.

DeJong, Hans B., Robert B. Dunbar, David A. Mucciarone, and David A. Koweek. Carbonate saturation state of surface waters in the Ross Sea and Southern Ocean: controls and implications for the onset of aragonite undersaturation. *Biogeosciences*, 2015.

Other

Interests: Soccer, backpacking, travel, juggling, magic tricks
Languages: French, Spanish, Tamil
Background: Born in the US and grew up in India and Madagascar; I have also lived in Mali and South Korea
Field Experience: 168 days at sea on research cruises in the Indian and Southern Oceans; scientific scuba diver (>400 dives)