Jacob Sanford

Senior Technical Operations Manager, UNB Libraries

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PROFILE

Fifteen years in technical operations, now responsible for the frameworks, delivery pipelines, and development team behind UNB Libraries' 150+ services. Designs the library's AI architecture and helps shape its governance. Former computational physical chemistry researcher and university instructor; teaching remains central to mentoring staff and to explaining technical subjects to decision-makers.

AREAS OF EXPERTISE

Leadership	Supervising and prioritizing a developer team · Mentoring and hands-on technical training
Operations	Reliability and security of 150+ services · Infrastructure growth and sustainability strategy
AI and governance	AI architecture for an institutional library · AI guidance and emerging technology committees
Platform	On-premises Kubernetes and containers · Large-scale digitization and ingest workflows · Developer experience

EXPERIENCE

Senior Technical Operations Manager Jun 2017 – present

UNB Libraries, Fredericton, New Brunswick

- Sets IT strategy with Library Administration, supervises the developer team, and scopes new work: requirements, feasibility, and cost estimates.
- Designed the architecture of a shared LLM gateway and led its implementation; governance policy applies to every library application that uses an LLM, from one configuration.
- Designed Dockworker, one development workflow for every project regardless of framework. It underpins more than 75 projects.
- Mentors team members, writes executive summaries and strategy documents to inform policy decisions, and leads seminars and practical training on infrastructure and workflows.

Infrastructure and Solutions Architect Dec 2013 – Jun 2017

UNB Libraries, Fredericton, New Brunswick

- Led the 2016 move of grant-funded and one-off applications into containers on an on-premises Kubernetes cluster that now underpins most library services.
- Set the development process for custom web applications and managed the developers who built them.

EXPERIENCE *(contd.)*

Web Developer and Senior Developer Feb 2010 – Nov 2013
UNB Libraries, Fredericton, New Brunswick

Doctoral Researcher and Instructor 2008 – 2010
University of New Brunswick, Department of Chemistry, Fredericton, New Brunswick

Research in computational physical chemistry with Prof. Saba M. Mattar while writing the doctoral thesis. Course instructor for CHEM 3621 Electrochemistry and Chemical Kinetics.

Founder 2004 – present
Elemental CodeWorks, Fredericton, New Brunswick

Independent consultancy: accessible web applications and LLM-based interfaces, including Indigenous language revitalization projects.

EDUCATION

Ph.D., Computational physical chemistry 2010
University of New Brunswick

SELECTED PROJECTS

UNB Libraries

Shared LLM gateway

Designed and led the implementation of the shared LLM gateway that applies governance policy to every library application that uses an LLM, from one configuration.

Shared service platform Since 2016

Led the 2016 move of library applications into version control and containers on an on-premises Kubernetes cluster that now underpins most services.

Dockworker

Designed Dockworker, one development workflow for every project regardless of framework; it underpins more than 75 projects.

New Brunswick Historical Newspapers Project Since 2019

Designed the infrastructure and ingest workflows for nearly 50,000 digitized newspaper issues; maintained since 2019.

UNB Scholar Since 2015

Responsible since 2015 for the institutional repository of nearly 11,000 works, through three major platform upgrades.

Peskotomuhkati-Wolastoqey Language Portal

Designed the infrastructure for a language dictionary with speaker audio, built with two speaker communities in Canada and the United States.

SERVICE

Emerging Technologies Team, UNB Libraries. Founding member.	2024 – present
AI Guidance and Implementation Committee, UNB Libraries. Founding member.	2024 – present
Review Committee for the Director of Scholarly Technologies, UNB Libraries. Member.	2019

JOURNAL PUBLICATIONS

4 peer-reviewed journal articles in computational physical chemistry. Full references in the complete CV: jacobsanford.com/cv/Jacob-Sanford-CV-Full.pdf.

PRESENTATIONS

Keeping the Web Open Under Automated Load	Oct 2026
State of AI Development Tools: Working Deliberately in 2026	Jul 2026
State of AI Development Tools: Update and Practical Workflows in 2025	Apr 2025
Using Retrieval-Augmented Generation (RAG) to Improve Library Interfaces	Jan 2024

4 more in the complete CV.