

# William O'Higgins Witteman

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## Profile

I solve problems. I am a programmer librarian with a data science skillset. I am at my best when the problems that need solving are at the intersection of people, data, and complex technology. I meet clients and customers where they are, and can design and program software that takes people where they need to go. I build, teach, design, and document technology that empowers the people that use it.

## Technical Skills

**Programming Languages:** Python, R, Rust, Javascript, PHP, Perl, Go, Dart, Ruby, C#, SQL  
**Data Skills:** Machine Learning/Deep Learning (ML/DL), Artificial Intelligence (AI), Pipelines, Validation, Database Design, Data Warehouse and Data Lake Design  
**Environments:** Relational Databases, NoSQL, Full-Stack Web Development

## Education

Master of Information Studies, University of Toronto, 2005  
Digital Media Program, George Brown College, 2001  
Hon. B.A. in English, University of Toronto, 1998

## Work Experience

### Data Scientist – CISSS-CA

Centre intégré de santé et de services sociaux de Chaudière-Appalaches, Lévis, Québec, Canada, April 2021 – Current

**Challenge:** Working on data-driven healthcare research in the ICUs and Emergency Departments of a populous region of Québec during a pandemic requires flexibility, resourcefulness, and tireless attention to preserving patient privacy while powering insights with patient data.

#### Solutions:

- Extracted, cleaned, and analyzed data from many different systems, met with multi-disciplinary stakeholders to create coherent data repositories fueling nationwide research.
- Designed, coded, implemented, and documented data-handling protocols to allow cutting-edge machine-learning and artificial intelligence research without compromising patient privacy.
- Mentored bioinformatics and medical students, teaching research methods and data ethics.
- Wrote tools for cleaning multisystem data to allow consistent data formats across multiple systems with user and machine input.
- Wrote tools for simulated data generation to allow students and statisticians without programming experience to create example data for testing and teaching without compromising patient privacy.

### Interactive Seat Map Analyst – Ticketmaster

Ticketmaster, Hollywood, USA, January 2016 – April 2021

**Challenge:** *Ticketmaster is a global company that sells more than 300 million tickets per year to events all over the world. A keystone technology driving this volume is the Interactive Seat Map, which allows fans to choose where they want to be in the venue. In addition to creating these maps, I quickly became indispensable as the primary troubleshooter for map issues, rapid builds, and difficult clients, where I turned fraught relationships into solid partnerships through clear communication and active listening. I created and led a documentation portal and trained new Analysts and consulted on new software projects within the company.*

**Solutions:**

- Specialized in extraordinary projects - tight timelines, inadequate information, exacting clients.
- Distilled complex, ad hoc troubleshooting practices into a structured, stepwise approach that others were able to use, creating a self-serve culture of empowered analysts.
- Created a documentation portal, and led a team of writers to create a comprehensive reference for everything known about the product and the ways it interacts with the rest of the company's technology.
- Became the resource devoted to fixing troubled relationships, culture clashes and high-degree-of-difficulty maps, building solutions, relationships and trust both within and without the company.

**Information Specialist**

Plateforme de Recherche Clinique et Evaluative du CHU de Québec, Université Laval, Oct 2012 – Sep 2015

**Challenge:** *The CHU de Québec is a university hospital network with clinical services covering a vast geographical area and 514 researchers spanning research areas from health policy research to microbiology. Researchers in this network need expert methodological support for all kinds of literature reviews, from theses to Cochrane Systematic Reviews, along with support for grant writing and publishing.*

**Solutions:**

- Provided methodological support for literature reviews, including systematic reviews, in the medical, social science, engineering and psychological fields. Contributed expert search strategies for over 45.
- Provided significant support to assist with the establishment of a Canadian French-language branch (Branche Cochrane Québec) of the Cochrane Collaboration.
- Provided editing services for francophone researchers on over 30 publications.
- Trained and mentored graduate students, medical residents, and other trainees in literature reviews and the use of reference management software.

**Librarian, IT Manager**

Toronto Health Economics and Technology Assessment Collaborative, University of Toronto and University Health Network, Jan 2008 – July 2012

**Challenge:** *At THETA I was called upon to act as a full-service research librarian, developing search strategies for 10-16 systematic reviews per year, while also building and maintaining the IT infrastructure for a staff of 15-20. This includes building and maintaining the THETA website, and developing and executing data handling protocols to meet or exceed Ethics Review Board standards and comply with Canadian and occasionally US legislation governing the collection and security of personal health information.*

**Solutions:**

- Provided research support as a medical librarian on all of THETA's projects, including developing and refining search strategies and assisting researchers in defining their research questions.
- Developed high-sensitivity search strategies to support 10-16 systematic reviews each year.
- Gave yearly seminars to students on search strategy development, along with one-on-one follow-up meetings with numerous Masters and PhD students in pharmacy studies.
- Designed and wrote experimental and data-handling protocols for field evaluations and clinical trials, and subsequently execute those protocols, from purchasing hardware to configuring and troubleshooting systems throughout the trial process.
- Co-authored manuscripts for scientific journals and reports for Ontario Ministry of Health and Long-Term Care.
- Developed and maintained the THETA website, keeping it current, designing and building web-based tools to support systematic reviews, and continuing to develop tools to aid in health economic and health technology assessment tasks.