Edmond La Chance, Ph.D

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Experienced Software Developer and Data Engineer with a Ph.D. in Software Verification & Cluster Computing. Skilled in distributed systems, big data processing, and full-stack development. Passionate about solving complex problems and driving innovation in data-intensive applications.

Work History

- **Software Developer at Yoppworks (acquired by Improving)**
  January 2022 - Present
  - Worked for the migration of Bell's data pipelines to Google Cloud, implementing data enrichment for cloud functions that process terabytes of telecom data per day.
  - Maintained and upgraded workflows for Bell's Cloudera cluster, utilizing Apache Spark, Hive, Impala, Oozie, and Hadoop.
  - Developed automation scripts using bash, python, awk, and sed to optimize data processing workflows.
  - Worked on a demo called ProjectX for Canada Post using Scala with the typelevel stack (http4s, cats, doobie, circe, spec2cats), deployed on Kubernetes and Google Cloud.
  - Contributed to the Dokn mobile app for delivery drivers, working on the React-Native front-end with React-Native Maps.
- **Software Engineer at Timesphere**
  August 2021 – December 2021
  - Full-Stack Engineer for Timesphere Application, used by SAQ (Société des alcools du Québec) for employee schedule management.
  - Developed new features and fixed bugs in the Java Spring Framework backend.
  - Ported existing features to the new React/Redux-toolkit frontend, improving user experience and application performance.
- **Lecturer, Université du Québec à Chicoutimi**
  2015-2021
  - Taught 8INF803 (Distributed Databases): Covered distributed databases, crawling, and distributed data processing. Introduced students to data structures like B+Trees, LSM, Bloom Filters, and HyperLogLog.
  - Taught 8GIF128 (Web programming): Instructed students in HTML, CSS, JavaScript, DOM, REST, and WebSockets.

Education

- **Ph.D in Software Verification & Cluster Computing**
  2013-2021
  Université du Québec à Chicoutimi
  Thesis: Extended Combinatorial Testing using Graph Algorithms and Apache Spark
- **M.S**
  2011-2013
  Université du Québec à Chicoutimi
  Thesis: Algorithms for the minimum spanning tree problem
- **B.S**
  2008-2011
  Université du Québec à Chicoutimi

Publications

Journal Article: La Chance, Edmond, and Sylvain Hallé. "An investigation of distributed computing for combinatorial testing." *Software Testing, Verification and Reliability* 33, no. 4 (2023): e1842.

Ph.D. Thesis: La Chance, Edmond. "Extended combinatorial testing using graph algorithms and Apache Spark." Ph.D. dissertation, Université du Québec à Chicoutimi, 2021.

Conference Paper: Hallé, S., La Chance, E., Gaboury, S. "Graph Methods for Generating Test Cases with Universal and Existential Constraints." In *Testing Software and Systems. ICTSS 2015*. Lecture Notes in Computer Science, vol 9447. Springer, Cham, 2015.

Projects

- **TSPARK – A distributed combinatorial test generator**
  Open-source project developed for Ph.D. thesis. Written in Scala using Apache Spark, with 30k lines of code. Implements distributed algorithms for graph coloring and hypergraph vertex problems.
- **CTL Simulator**
  Implements the CTL labeling algorithm for model checkers in C++ (1k lines of code).
- **Cerberus Spells**
  Website for [Cerberus RPG spells](). Built using React, MUI, node.js, JSON, pandoc, with LaTeX for PDF output.
- **Cerberus Bot**
  Discord bot written in Javascript.
- **Morphopoetic.com**
  Website for older texts of Michaël La Chance, generated using a custom static website generator with node.js and TOML.
- **ASM FORUM**
  Discussion forum implemented in x86 assembly language, CGI processes, and SQLite.

Skills

Programming Languages:

- Scala, Java, C/C++, Python, JavaScript, TypeScript, x86 assembly

Frameworks and Libraries:

- Apache Spark, Spring Boot, React, Redux Toolkit, React Native, Node.js, Socket.io

Cloud and Big Data Technologies:

- Google Cloud, BigQuery, Hadoop, Hive, Impala, Oozie

Databases:

- SQL, SQLite, Postgres

DevOps and Version Control:

- GitLab CI/CD, Docker, Git, GitHub

Other Technologies:

- UNIX Shell Scripts, awk, sed, grep, HTML, CSS, LaTeX, Pandoc, JIRA, Slurm

Certifications

- **LightBend Certified Reactive Architect**
  Issued Jan 2022, Expires Jan 2025