David C. Leberknight

CURRICULUM VITAE

I am a technical leader with diverse experience, including as the Principal Solutions Architect at IRD NZ, Co-Founder of the Software Federation consulting firm, Project Leader many times, and most recently, Machine Learning Engineer. I know how to manage teams and stakeholders, solve complex challenges, and deliver results. I can code too (indeed, I used to teach C++, Java, and OO Design). I also understand security and cloud design patterns. The AI revolution is here, and I got my master's degree in this topic; now I am dedicated to understanding how the new AI works and how to apply it in practice. Contact me here: www.linkedin.com/in/david-leberknight/

WORK EXPERIENCE

8090 Solutions, Inc. & CacheQ Systems, Inc. / Member of Technical Staff
Remote from Tauranga, New Zealand / February 2024 - January 2025
- Improved AI performance on AWS Neuron and Google TPU chips, achieved by optimizing the mathematics for LLM attention (High-Performance Computing).
- Software architect for CqTorch, a drop-in replacement for PyTorch that uses gRPC to automatically send ML workloads to cloud GPUs from edge devices.
- Developed a compiler pass to optimize sharding large tensors across GPUs.
- Technologies used: PyTorch, Python, C++, AWS SageMaker, Git, Docker, MLIR.

2014 - 2023: Sabbatical
- Dedicated study with certifications**:** AWS Machine Learning (2023), AWS Solutions Architect (2022), CompTIA Security+ (2022)

Inland Revenue Department / Consulting Principal Enterprise Architect
Wellington, New Zealand / 2012 – 2013 (18 month contract)
- **Principal Solution Architect** for New Zealand's tax department (**IRD**).
- Responsible for delivering solution designs for all IT change projects.
- Member of the Enterprise Architecture Leadership Team.
- Matrix-managed up to 15 Solution Architects.
- Co-chair of the Enterprise Architecture Council.
- Chair of fortnightly meetings with the Principal IT Consultants (operations team).
- Author of the Information Security Reference Architecture document.
- Implemented significant improvements to the Solution Architecture process.

Solnet Solutions Ltd. / Senior Consultant
Wellington, New Zealand / 2010 – 2012
- **Inland Revenue (IRD):** Prior to my promotion to Principal Architect (described above), I designed the system for taxpayers to opt in for notifications by topic.
- **Accident Compensation Corporation (ACC):** Delivered the eGateway, a web service for health-care providers to submit forms over a secure channel.

Jade Software Corporation / Delivery Manager New Zealand
Christchurch, New Zealand / 2008 – 2009
- Managed numerous software teams ala Prince2.
- Scrum Master for several agile teams.
- This was my first job in New Zealand. Prior to this, I led a successful consulting company in the USA.

Software Federation, Inc. [SFI] / Co-Founder, Principal, and Consultant
Colorado, USA / 1996 – 2007
Sales and contract negotiations, but mostly hands-on consulting for customers:
- **Xilinx, Inc.** - Introduced VMware enterprise technology.
- **IGW N.V.** - Created Java applets to play casino games for real money.
- **Level (3) Communications** - Middleware development.
- **Avitek, Inc.** - Middleware development.
- **Janus I.H.C.** – Taught classes for Java, C++, and agile management, along with design consulting for multiple projects.
- **Lucent Technologies** - Re-implemented the manual router for the FPGA CAD editor, along with other improvements to the C++ code.

Latis Networks, Inc. (Still Secure) / Director of Product Engineering
Colorado, USA / 2006
- Project manager and technical lead for the Cobia Unified Network Platform, integrating open-source TCP/IP components (router, DNS, DHCP, Firewall) with a great browser interface. Designed the solution and led the agile team.

SFI Client: **National Center for Atmospheric Research / Principal Consultant**
Colorado, USA / 1999 - 2003
- Recipient of NCAR's 2001 ***Outstanding Accomplishment Award*** for ***Scientific and Technical Advancement*** - for the 4DWX project, a comprehensive suite of state-of-the-art tools for meteorologists. As the Software Engineering lead, I led the agile effort to redesign the system to make it scalable and modular.
- Numerous other short consulting engagements.

University of Colorado – Boulder / Computer Science - Faculty
Colorado, USA / 1999 - 2002
- *Course author for CSCI-4448: **Object-Oriented Programming and Design**. Topics include: Java, C++, UML, OO design patterns, multi-threaded concurrency, databases, and (agile) project management. *Software Engineering in the wild.*
- Lecture notes are online: https://www.leberknight.com/csci4448.html
- Also taught ***Advanced C++*** evening classes for adults.

Early Career/ Colorado, USA
- **Bolder Heuristics, Inc.** - Consulting engineer for many clients including Storage Technology Corp, Health Decisions LLC, and USWest Knowledge Base Group.
- **NeoCAD, Inc.** (acquired by Xilinx, now AMD) - FPGA CAD software in C++.
- **Carnegie Mellon University** (CLARIT project) - Linguistic analysis of text.
- **Daisy / Cadnetix, Inc.** - Printed-circuit-board CAD router software in C.

OTHER ACHIEVEMENTS

- Member of the ***World Footbag Hall of Fame*** (inducted in 2023).
- Travel to more than 80 countries, including some epic adventures.
- Fluent in Spanish and Portuguese, plus conversational French.

EDUCATION

M.S. in Computational Linguistics, Carnegie Mellon University
- Artificial intelligence, applied to machine 'understanding' of natural languages.

B.S. in Electrical Engineering, Cornell University   "With Distinction"
- Computer hardware architectures, and theoretical physics.