

ERIC SCHOEN

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EXPERIENCE

MAY 2015 – PRESENT

CHIEF TECHNICAL OFFICER, I2KCONNECT INC

Overall responsibility for delivering the i2k Connect Platform, which leverages artificial intelligence and natural language processing to analyze text from large document collections. The Platform automatically enriches documents with enrichment metadata: classifications, titles, summaries, place entities, and key phrases, and can be trained to identify and extract key datapoints from text. The Platform indexes original text and enrichment metadata and provides user-facing and web API endpoints to search and analyze processed content. i2k Connect's customers include major oil & gas exploration, service, and consulting companies and professional societies. As CTO, I focus upon delivering i2k Connect's roadmap, developing and integrating new capabilities into the Platform, and ensuring the architecture, AI science and processing algorithms are robust enough to operate at scale (e.g., up to 100's of TB of content) in cloud-based, on-premise and hybrid installations.

JUNE 2010 – MAY 2015

CHIEF SOFTWARE ARCHITECT, SCHLUMBERGER, LTD

Responsible for overall software architecture strategy, cross-segment architecture, and architect development at Schlumberger. Authored the standards of practice manual for Schlumberger software. Key contributor to Schlumberger software quality management system, Production Group real time surveillance center architecture, and the recently announced DrillPlan solution.

AUGUST 2007 – JUNE 2010

CHIEF SOFTWARE ARCHITECT, SCHLUMBERGER INFORMATION SOLUTIONS

Responsible for Schlumberger's commercial software architecture, as expressed through its architectural blueprint. Co-authored the Schlumberger Architecture development process and instilled software architecture validation/evaluation practices within the organization. Drove efforts to modernize Petrel's implementation infrastructure, and worked with SIS's portfolio managers to establish the long term roadmap for Petrel's information architecture.

DECEMBER, 2004 – AUGUST, 2007

ARCHITECT, SCHLUMBERGER INFORMATION SOLUTIONS

Responsible for the architecture of Ocean's "data-centric" product family, which included an application shell, a data access pipeline, and an Object-Relational Mapping engine. Also responsible for a database storage layer in Petrel, which has evolved over time to become Schlumberger's "Studio" project.

DECEMBER, 2004 – AUGUST, 2007

ARCHITECT, SCHLUMBERGER INFORMATION SOLUTIONS

Responsible for the architecture of Ocean’s “data-centric” product family, which included an application shell, a data access pipeline, and an Object-Relational Mapping engine. Also responsible for a database storage layer in Petrel, which has evolved over time to become Schlumberger’s “Studio” project.

MARCH, 1999 – DECEMBER, 2004

TECHNICAL ADVISOR, SCHLUMBERGER AUSTIN PRODUCT CENTER

Member of the team that developed early concepts, prototypes, and implementations of the SIS Ocean framework for geoscience software.

APRIL, 1997 – MARCH, 1999

SOFTWARE ENGINEER, SCHLUMBERGER AUSTIN PRODUCT CENTER

Member of the team that developed the 3D Common Model Builder, a shared earth modeling framework.

JULY, 1982 – APRIL, 1997

RESEARCH SCIENTIST, SCHLUMBERGER

Knowledge-based systems development, software engineering research, high-performance computing, geophysical data processing, elastodynamics simulation.

EDUCATION

SEPTEMBER, 1990

PH.D., COMPUTER SCIENCE (ARTIFICIAL INTELLIGENCE)

Thesis: Intelligent Assistance for the Design of Knowledge-Based Systems

JUNE, 1982

M.S.E.E, STANFORD UNIVERSITY (FOCUS: COMPUTER NETWORK SYSTEMS)

JUNE, 1981

B.S.E.E., STANFORD UNIVERSITY

SKILLS

- Software architecture and architecting
- Software design and engineering
- High performance computing
- Cloud and container-based computing: Docker, Kubernetes, Amazon ECS
- IT strategy
- Programming languages:
 - Fluent in C, C++, C#, Clojure, Java, Javascript, SQL
 - Capable in Python, PHP

PROFESSIONAL ACHIEVEMENTS

- Best paper award, Schlumberger Software Conference '91, for "Reasoning about software grafts."
- Best paper award, Second International Workshop on Software Reusability, Lucca, Italy, March, 1993, for "Design as evolution and reuse."

PATENTS

- Object-oriented Framework for Menu Definition, U.S. Patent 5,119,475, June 02, 1992.
- Method for Inputting Seismic Data for Seismic Processing on a Multiprocessor Computer, U.S. Patent 5,530,646, June 25, 1996.
- Method for Load Balancing Seismic Migration Processing on a Multiprocessor Computer, U.S. Patent 5,537,319, July 16, 1996.
- Method, Apparatus and System for Constructing and Maintaining Scenographs for Interactive Feature-Based Geoscience Geometric Modeling, U.S. Patent 6,980,935. December 27, 2005.
- Method and Apparatus for Oilfield Data Repository. U.S. Patent 7,895,241. February 22, 2011.
- Oilfield Operational System and Method. U.S. Patent 8,145,464 March 27, 2012.
- Method and Apparatus for Oilfield Data Repository, U.S. Patent 8,326,888. December 04, 2012.
- Visualization Controls, U.S. Patent 8400398. March 19, 2013.
- Oilfield Application Framework, U.S. Patent 8499829. August 06, 2013.
- Oilfield Application Framework, U.S. Patent 9708897, July 18, 2017.
- People in Context. U.S. Patent Application US20130325725A1. Published December 05, 2013.
- Well Plan System, U.S. Patent Application WO2016168617A1, Published October 20, 2016.
- Multi-Level Well Design Validator. U.S. Patent 10,592,620, March 17, 2020.
- Method and System for Unsupervised Learning of Document Classifiers. US20170293842A1, published October 12, 2017.

PUBLICATIONS

- E. Schoen and R. Smith. Impulse: A display-oriented editor for Strobe. Proceedings of the National Conference on Artificial Intelligence, August 22-26, 1983, Washington, D. C.: AAAI-83. pp. 356-358
- R. Smith, G. Lafue, E. Schoen, and S. Vestal. Declarative task description as a user interface structuring mechanism. IEEE Computer. Vol. 17, no. 9, September 1984. pp. 29-38
- E. Schoen, R. Smith, and B. Buchanan. Design of knowledge-based systems with a knowledge-based assistant. *IEEE Transactions on Software Engineering*. Vol. 14, no. 12, December 1988. pp. 1771-1791
- E. Schoen, R. Smith, and B. Buchanan. The knowledge base designer's assistant: a preliminary report. *Concepts and Characteristics of Knowledge-based Systems: Selected and Reviewed Papers from the IFIP TC 10/WG 10.1 Workshop*, Mount Fuji, Japan, 9-12 November, 1987. M. Tokoro, Y. Anzai, A. Yonezawa, editors. Amsterdam; New York: North-Holland, 1989. pp. 105-136
- G. Arango, E. Schoen, and R. Pettengill. Design as evolution and reuse. Proceedings, *Advances in Software Reuse : Selected Papers from the Second International Workshop on Software Reusability* : March 24-26, 1993, Lucca, Italy. pp. 9-18
- G. Arango, E. Schoen, R. Pettengill, and J. Hoskins. The graft-host method for design change. *Proceedings, 15th International Conference on Software Engineering*, May 17-21, 1993, Baltimore, Maryland. pp. 243-254

- G. Arango, E. Schoen, and R. Pettengill. A process for consolidating and reusing design knowledge. *Proceedings, 15th International Conference on Software Engineering*, May 17-21, 1993, Baltimore, Maryland. pp. 231-242
- G. Arango and E. Schoen. Using product models to compose rationales. Presented at: *AAAI '92 Workshop on Design Rationale Capture and Reuse*, San Jose, Calif., July 1992
- G. Arango, J. Hoskins, and E. Schoen Product modeling for software re-engineering. Presented at: *Domain Modeling Workshop, International Conference on Software Engineering*, Austin, Tex., May 1991
- E. Schoen. Active assistance for domain modeling Presented at: *Domain Modeling Workshop, 13th International Conference on Software Engineering*, Austin, Tex., May 1991.
- E. Schoen, R. Smith, J. Boden. AI supports information discovery and analysis in an SPE research portal. Paper presented at *SPE Annual Technical Conference and Exhibition*, September, 2018. Society of Petroleum Engineers. SPE-191758-MS.
- R. Smith, E. Schoen, J. Tenenbaum. Early AI applications at Schlumberger. In *IEEE Annals of the History of Computing*. Vol. 14, no. 1. January-March, 2022. DOI: 10.1109/MAHC.2022.3149469. pp 88-102.
- R. Smith, B. Buchanan, E. Schoen, J. Eckroth, D. Endres, S. Florez, and J. Elliott. Connecting information to knowledge in the SPE research portal and beyond. *The Way Ahead*. Society of Petroleum Engineers. Forthcoming.