Horst Dehmer
CV

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Controlling complexity is the essence of computer programming. — Brian Kernighan (1976)

Personal Data

Citizenship	German
Date and Place of Birth	August 11, 1969, Darmstadt, Germany

Education

1989–1999	**Graduate degree in computer science**, Technical University, Darmstadt, Germany Subsidiary Subject: Organizational Psychology

Vocational experience

2014–2025	**Co-Founder, Managing Partner**, Syncpoint GmbH, Vienna, Austria Customers: Salzburg AG, Federal Ministry of Defence, Federal Ministry of Education, Science and Research, Austrian Institute of Technology
2023–2025	**Research**, *Support Software for the Tactical Reconnaissance Network - GUSTAV*, Federal Ministry of Defence, Austria Development and deployment of an integrated system prototype with Technology Readiness Level - TRL 7 (Technology Demonstration) for the FORTE predecessor projects PIONEER and BOOST. Digitization of the tactical reconnaissance network within the NATO Intelligence Cycle with end-to-end process support for the All-Source Intelligence Cell. Focus on the collection, structuring, and integration of reconnaissance results, as well as the periodic creation of reports, including situation maps with geo-referenced representations of events. ▷ React, Svelte, OpenLayers, PostgreSQL, Node.js, Python, Llama 3.1, Answer Set Programming - ASP, MinIO, RDF/OWL, Apache Airflow/Celery, RabbitMQ, Oxigraph/SPARQL

2023–2024 **Research**, *Adaptable Automated Intelligence Gathering Processes for Decision Support - BOOST*, Federal Ministry of Defence in cooperation with Austrian Institute of Technology - AIT, financed by Austrian Research Promotion Agency - FFG , Austria

Provide support for analysts by automating selected steps of the Intelligence Lifecycle Process: Structuring collected intelligence data, extraction of relevant information, validating hypothesis, and deriving recommendations for action. Implemented by interconnected services powered by an extensive customized taxonomy and LLMs.
▷ React, Svelte, PostgreSQL, Node.js, Python, Llama 3.1, Answer Set Programming - ASP, MinIO, RDF/OWL, Apache Airflow/Celery, RabbitMQ

2022 **Consulting, Training, Development**, *Friendly Force Information System – Part 2*, Austrian Armed Forces (IKT&CySihZ), Vienna, Austria

Enhancements to the Friendly Force Information System in the web GUI and backend. Eliminating *knowledge silos*: continuing education and training of in-house developers.
▷ ActiveMQ, JMS, Akka Actors und Akka Persistence, PostgreSQL, Event Sourcing

2022–2025 **Architecture, Development/Backend**, *PV-Metering Portal*, Salzburg AG, Salzburg, Austria

Periodic polling of the energy meters of photovoltaic systems from various manufacturers (Siemens, Janitza, Carlo Gavazzi) via Modbus/TCP.
▷ PostgreSQL, PL/pgSQL, Node.js, Modbus/TCP, Event Sourcing (JSON)

2022–2023 **Research**, *Communication, Security and Information Transmission System for Task-specific Situation Reporting and Operational Management - KOSINUS*, Federal Ministry of Defence, Austria

▷ Matrix, Element Desktop- und Android-Clients, Docker, JavaScript, Android, Kotlin

2020 **Architecture, Development/Backend**, *COVID-19 Case Tracking*, Federal Ministry of Education, Science and Research, Austria

Client/server application for universities, schools, and other educational institutions. Reporting and tracking infections and recoveries of employees and students.
▷ Node.js, React, Express, REST, PostgreSQL, Event Sourcing (JSON)

2020–2022 **Forschung**, *Interoperability and Digitization of Intelligence Gathering Processes - PIONEER*, Federal Ministry of Defence in cooperation with Austrian Institute of Technology - AIT, financed by Austrian Research Promotion Agency - FFG , Austria

Predecessor to BOOST project with focus on automatic and manual structuring collected intelligence data, information integration into a knowledge base using AI methods and provision of dedicated user interfaces and tools with support for information presentation in various time-based and georeferenced views.
▷ React, spaCy Natural Language Processing, Node.js, LevelDB, Python, RDF, Docker, MinIO

2018–2019 **Architecture, Development**, *Gas Portal*, Salzburg AG, Salzburg, Austria

Polling meter readings and other parameters from gas filling stations for billing purposes as well as for planning and executing maintenance work.
▷ PostgreSQL, PL/pgSQL, Node.js, Modbus/TCP, Event Sourcing (JSON)

2016–2017   **Consulting, Architecture, Development**, *Friendly Force Information System – Part 1*, Austrian Armed Forces - FüUZ, Vienna, Austria

Consulting, design, and implementation of a Friendly Force Information System. Revision of the infrastructure and development tools. Introduction of virtualization for the development servers (Maven repository, Jenkins) and modernization of tools, including Git, IntelliJ, SonarQube, and Java 8.

Event-driven architecture based on microservices for tracking and displaying GPS positions of own units. Support for tactical radio (Combat Net Radio - CONRAD) and BOS radio (authorities and organizations with security responsibilities).

▷ Java, Akka Actor Framework, ActiveMQ, PostgreSQL

2014–2016   **Architecture, Development**, *Communication Gateway - CommGW*, Salzburg AG, Salzburg, Austria

Centralized monitoring of, and communication between, business-critical applications and processes based on a microservice architecture. Custom workflow engine for high flexibility; message sending with guaranteed delivery.

▷ Node.js, Docker, RabbitMQ, MongoDB, Express, SMTP, AMQP, FTP, REST, IEC 60870-5-101, IEC 60870-5-104

2011–2014   **Development/Backend**, Frequentis AG, Vienna, Austria

Design and development of various interfaces to Avitech Aeronautical Exchange Layer (AxL) and Eurocontrol Central Flow Management Unit (CFMU) as part of the CNS FueZNatLV project *National Air Defense Command Center*, Uedem, Germany. Implementation and maintenance of static code analysis (Sonar) for the collection of quality metrics for framework, server, and client modules. Support for the Radar Recording sister project with specific knowledge of the Eurocontrol ASTERIX format and its data categories, as well as the Java Netty network library (UDP).

▷ Oracle Datenbank, Hibernate ORM, Netty, JBoss Application Server, SOAP

2007–2011   **Consulting, Architecture, Development**, Frequentis AG, Wien, Austria

Redesign and implementation of the JC3IEDM data store, as well as the interface to the DEM protocol layer for the *Phoenix Command and Control Information System* (C2IS) of the Austrian Armed Forces. Modernization of development tools and methods; in particular, replacement of commercial solutions with open-source alternatives. Introduction of integration and nightly builds with Continuous Integration Build Server (Hudson/Jenkins). *Joint Consultation, Command and Control Information Exchange Data Model* (JC3IEDM) and *Data Exchange Mechanism* (DEM) are specifications of the NATO *Multilateral Interoperability Programme* (MIP).

▷ PostgreSQL, PL/pgSQL, Hibernate ORM, Eclipse RCP

2004–2007   **Team Lead, Development**, Flughafen Wien AG, Schwechat, Austria

Implementation of freight-specific applications as part of the replacement of the host system with an Enterprise Java platform. Selection and team lead for up to four external developers.

▷ Oracle Datenbank, including Advanced Queueing, WebSphere Application Server

2002–2004   **Team Lead, Development**, Login GmbH, Wiener Neustadt, Austria

Reimplementation of an existing document management system based on Enterprise Java. The customized solution specializes in the management of domain-specific artifacts used in plant planning and plant construction at OMV, Schwechat, Austria. Team lead for three developers.

▷ Oracle Datenbank, Enterprise Java, JBoss Application Server

1999-2002 **Team Lead, Development**, 5 Point AG, Darmstadt, Germany
Implementation of various business-critical applications (including dealer information, warranty processing) in Java and Enterprise Java on IBM AS/400 for ŠkodaAuto Deutschland GmbH, Weiterstadt, and Seat Deutschland GmbH, Mörfelden-Walldorf. Team management and technical leadership of four developers, as well as technical coordination with the client.

Contracting

1998 **Development**, 5 Point AG, Darmstadt, Germany
Development of smaller solutions and tools for ŠkodaAuto Deutschland GmbH, Weiterstadt, Germany.

1997 **Development**, Hitech International Services GmbH - HISERV, Frankfurt/Main, Germany
IBM MQSeries Middleware development in C/C++ for Hoechst AG, Frankfurt/Main und Alcatel, France.

1994–1996 **Development**, Systan GmbH, Fränkisch-Crumbach, Germany
Development of various solutions and tools in C and Borland Pascal for Telekom D1 Data Post-processing System (DPPS), DeTeMobil, Cologne/Bonn, Germany.

1991–1993 **Development**, CAP debis Systemhaus GmbH, Darmstadt, Germany
Development of a visual editor for creation and maintenance of parts of the project documentation (Terminal Input Masks) for Telekom D1 Data Post-processing System (DPPS) for VAX/VMS with VAX C/SQL and PostScript. Interface for DEC/CMS for automatic creations of document revisions.

Open-Source Projects

2023 **https://github.com/syncpoint/signal**
Synchronous JavaScript signal library for reactive functional programming (FRP). Monadic data type, compatible with Fantasy-Land specification and transducer protocol.

2023 **https://github.com/syncpoint/signs**
Re-implementation of *milsymbol* library from Måns Beckman with focus on maintainability and extensibility. Programmatic creation of SVG-Symbols for US DoD standards MIL-STD-2525 B through D and NATO APP6-B and APP6-D.

2021 **https://github.com/syncpoint/wkx**
Fork with bug fixes and npm-Release of https://github.com/cschwarz/wkx. Encoder/Decoder for geometry formats *Well-Know Text* and *Well-Know Binary* (WKT/WKB).

2018–2025 **https://github.com/syncpoint/ODINv2**
Geographic presentation of situational picture, especially for military purposes. Symbols and tactical graphics in conformance with U.S. DoD standard MIL-STD-2525C. Electron application based on React, OpenLayers and LevelDB. Support for macOS, Linux and Windows.

Languages

German   native
English   fluent   *C2*

Spanish (Castilian)	advanced	*C1*
Japanese	basic grammar and writing systems	*JLPT N5*

Proficiencies, Skills

Paradigms	Deep and profound understanding of object-oriented software design and development. Practical experiences of loosly coupled systems in the small and large by means of asynchronous message passing. Healthy interest in functional-style programming, non-blocking concurrency and immutable data structures.
Operating Systems	macOS, Debian, RedHat, Windows, Android
Programming Languages	JavaScript/ECMAScript 6, Scala, Java, pg/pl SQL, bash/sh Script, LaTeX
Relational Database Systems	PostgreSQL/PostGIS, SQLite, Oracle
NoSQL	MongoDB, LevelDB, Redis, CouchDB
Middleware	RabbitMQ, ActiveMQ, ØMQ
Frameworks	React, Solid.js, OpenLayers, JavaScript Topology Suite
Tools, Platforms	Node.js/NPM, Electron, Docker, Visual Studio Code, git

Favorite Literature

- **The Art of War**, *Sun Tzu*
- **Domain Driven Design**: Tackling Complexity in the Heart of Software, *Eric Evans*
- **Clean Code**: A Handbook of Agile Software Craftsmanship, *Robert C. Martin*
- **The Inmates Are Running the Asylum**: Why High Tech Products Drive Us Crazy and How to Restore the Sanity, *Alan Cooper*
- **Peopleware**: Productive Projects and Teams, *Tom DeMarco, Timothy Lister*
- **The Book of Five Rings**, *Miyamoto Musashi*

Hobbies

- **Running**
- **Shotokan Karate**: 1985-2022, Instructor, 2. Dan
- **Darts**
- **Shodō**: Japanese Calligraphy
- **Guitar**: 1997-2004 Rhythm guitar and backing vocals in coverband