OLIVIER BRUCHEZ

Software Engineer / Scala Developer

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PROFESSIONAL EXPERIENCE

Software engineer | Orbeon | May 2023 - present

Contributing to the development and maintenance of Orbeon Forms, enhancing the product by adding new features tailored to customer requirements.

Software engineer | Cultural Heritage & Innovation Center, EPFL | May 2012 - present

Contributing to various research projects by developing and maintaining software solutions, with a focus on digital asset management (DAM), distributed algorithms, and data integration.

Some specific projects I've worked on include:

- Digital asset management system for Montreux Jazz Digital Project **(Scala, Play, Akka, Slick, S3, Lift)**
- Prototype for a distributed algorithm execution platform for musicology datasets **(Akka, Docker)**
- Ingestion solution for the Claude Nicollier archive **(Akka, Slick, SQLite, S3, Google APIs, Archivematica)**
- REST API for iPad/web applications (metadata and audio/video streaming) **(Akka HTTP, Elasticsearch)**
- Integration of our artist/person database with Wikidata **(SPARQL, open linked data)**
- Artist contracts / music rights management and search
- Photo import tool using fuzzy string searching
- Integration with a smart playlist generator
- Various import/export and integrity check tools
- Various audio/video compression/processing tools (ffmpeg, custom algorithms, etc.)
- Integration of various algorithms (perceptual hashes, affinity propagation clustering, tree pruning, etc.)

Software engineer | E-mmunizer / Groowin | Aug. 2011 - Mar. 2012

Added features to an online commerce platform for local businesses **(Scala, Lift, Cassandra, PostgreSQL, S3)**

Software engineer / consultant | ELCA Informatique | Sep. 2009 - Jul. 2011

- Maintained an unforgeable code printing library and a printer-agnostic layout editor **(Python, C#, C++)**
- Developed a web application to allow multiple teams to synchronize their activities during the deployment of a release into the production environment **(Java, GWT)**
- Partially rewrote a risk management (fraud detection) module developed by an intern **(C++, SQL)**
- Developed and maintained online/high-availability and offline electronic payment applications using Scrum, UML, and test-driven development (TDD) **(Java, C++, SQL)**

Software engineer / consultant | Self-employed | Jul. 2008 - Aug. 2009

- Added client/server APIs to an existing web application **(Orbeon Forms, XForms, Java)**
- Added features to a network audit reports management application **(Orbeon Forms, XForms, XQuery, XSLT, eXist)**
- Developed an application to launch E-Prime psychology tests and analyze results **(C++, data analysis)**

Software engineer | VisioWave / GE Security | Apr. 2002 - Jun. 2008

Developed and maintained the company cross-platform software (core services and SDK) for real-time acquisition, transmission, storage, and retrieval of digital audio/video streams for security applications. Worked on more than 30 releases, service packs, and hotfixes. Fixed hundreds of customer/QA-reported bugs.

- Designed and implemented a hardware-agnostic XML-based health monitoring framework
- Tested and maintained an H.264 codec (rate control and entropy coding modules)
- Developed a video rendering component using pixel shaders for deinterlacing and color conversion
- Designed and implemented a distributed alarm/event management system
- Developed a timeline component (GUI) for video/audio storage display/playback

SOFTWARE SKILLS

Languages	**Scala**, Java, JavaScript, Python, C/C++, PHP, C#, XQuery, XSLT
Frameworks	**Play, Akka, Slick**, Elasticsearch, Archivematica, Orbeon Forms
Databases	PostgreSQL, MySQL, SQLite, Cassandra, Neo4j
Dev. tools	Git, IntelliJ, SBT, Eclipse, Maven
General	Backend/frontend development, audio/video, digital preservation, functional programming (FP), object-oriented programming (OOP), distributed/real-time programming, machine learning

BOOKS/COURSES

Mar. 2017	"Big Data Analysis with Scala and Spark", by Heather Miller #mooc
Oct. 2016	"Parallel programming" (Scala), by Viktor Kuncak & Aleksandar Prokopec #mooc
Dec. 2015	"Functional Programming in Scala", by Paul Chiusano & Rúnar Bjarnason #book
May 2014	"Machine Learning", by Andrew Ng #mooc
Feb. 2014	"Play for Scala", by Peter Hilton, Erik Bakker & Francisco Canedo #book
Dec. 2013	"Principles of Reactive Programming", by Erik Meijer, Martin Odersky & Roland Kuhn #mooc
Dec. 2013	"Scala in Depth", by Joshua D. Suereth #book

OTHER/PERSONAL PROJECTS

2000 - present	KeithJarrett.org, an unofficial website about jazz pianist Keith Jarrett
2002 - 2010	Database for Civil Protection / Protection of Cultural Property organization
2000	Self-learning Connect Four software using neural networks and reinforcement learning

EDUCATION

1997 - 2002	**Master of Science in Computer Science (MS/CS)**
	EPFL, Swiss Federal Institute of Technology, Lausanne, Switzerland

Optional courses: artificial intelligence (AI), artificial neural networks (ANN), bioinformatics, computer graphics, document engineering, natural language processing, pattern recognition, virtual environments

Projects: distributed video archival and streaming system using CD/DVD jukeboxes, utility for converting between ICC profiles and XML, exploration of new types of Turing neural network, control software for an MC68331-based mobile robot, DNA sequence classification using artificial neural networks **(C/C++, Java, Lisp, assembly language, distributed computing, machine learning, evolutionary algorithms)**

1992 - 1997	**Scientific Matura**
	Collège de l'Abbaye de Saint-Maurice, Switzerland

LANGUAGE SKILLS

French (mother tongue), English (fluent), German (basic knowledge)

HOBBIES/INTERESTS

Mountain hiking, running, music (jazz and more), reading, blogging, traveling, going to the museum / theater / opera, meditation, science/math, technology, astronomy, futurology, life extension / longevity, philosophy, Getting Things Done (GTD)