

Laurence Fass – Resume / Curriculum Vitae

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Professional Introduction

I am a full-stack software engineer with extensive experience developing with TypeScript, PHP, C++, and C# in a wide variety of environments though my strong preference is developing reactive, real-time, hybrid web applications using a full Typescript stack. I am competent using the Next JS 14+ app router and all new features. I can efficiently manage complex client state with Redux Toolkit (and signals) and facilitate real-time remote communications with web-sockets. I am also competent with newer frameworks (notably Qwik and Astro) which offer even more efficient content delivery than Next 14. I host and develop my own assets with Docker containers. I can work autonomously or as an effective team member, and I am familiar with both Jira based scrum and kanban workflows. I can make a positive contribution to all aspects of the development cycle from server and container provisioning to full stack coding, testing and database analysis. I have recent experience with AWS deployment having introduced observability best practices to resolve long-standing performance issues with commercial production software and CI pipeline e2e tests. I also have a long term track record of effectively diagnosing and managing bugs and issues in a variety of complex software systems.

Personal information

Software development is my vocation, hobby, and my passion. I've spent several years conducting self-funded discovery of open source software and bleeding-edge web technologies to discover the most effective means deploying software and delivering content. Engaging directly with developers has enabled me to resolve and contribute to resolution of technical issues without direct corporate support, allowing me to discover resources free from specific business constraints and agendas. Aside from software development I also have enduring interests in digital currency investment, general investing, accounting, contract, and trust law. To diversify my skills and train both sides of my brain I have also been learning music (theory, guitar, piano, bass guitar and vocals) which has involved amateur public performances and I consider myself a confident and capable performer and public speaker. Music has enabled a level of engagement and enjoyment with family, friends and associates that my passion for software development cannot provide, and I am now passing on my music skills to my two young children with whom I spend most of my spare time.

Work, Activities and Experience

Dec 2023 to present

Independently funded

Research and development: Next.js 14, Nest socket gateways, partial page pre-rendering, and Oauth authentication strategies, Syntapse Ltd

Technologies: Linux, Docker, Next.js 14+, React 18+, Redux Toolkit 2, Redux-Saga, Redux-Observables, Capacitor.js, Android Toolkit, NextAuth.js, Web sockets, Qwik.js, Astro.js (all work stored on Github)

Technical Activities: I took voluntary redundancy from my last professional role to upskill to Next JS 14 and learn monorepo best practices (using pnpm to greatly reduce file storage of multiple projects). I have created <https://next.syntapse.co.uk> to showcase the new Next app router architecture and integration with Redux Toolkit for client state management and web sockets for remote communications. I also created <https://auth.syntapse.co.uk> to extend NextAuth.JS to include a secure role based Oauth enabled authentication login with email verified registrations and 2FA logins. I have also created <https://maplio.syntapse.co.uk> which is a live interactive multi-user map application with a rudimentary but functional Augmented Reality viewport, using a Nest backend and socket gateway, for which I am presently researching investment opportunities. I created <https://qwik.syntapse.co.uk> and <https://astro.syntapse.co.uk> as I consider both frameworks to have great future potential for efficient micro-frontend content delivery. I also created <https://capacitor.syntapse.co.uk>: a hybrid Android/IOS/web app created from a single Typescript codebase using Ionic components from a Next 14 website. All my sites and servers are hosted as separate Docker containers on a private VPS, each configured to minimise resource usage and run production and development servers simultaneously using a single code base within a very well structured and predictable pnpm monorepo.

Aug 2022 to Dec 2023

Fully remote, full time employment.

Full stack Typescript software engineer, Spotlight Sports Group

Technologies: Docker, microservices, monorepos (npm and Nx), Typescript, TyepORM, Next JS, AWS, React, Nest JS, Bull Queue, Opentelemetry, Grafana, Prometheus, Jaeger, Bitbucket, Jenkins

Technical Activities: Full stack software engineer employed to create software in Next JS and Nest J. The software was deploying to AWS using Terraform scripts and I introduced bind mounted docker containers to significantly improve local DX. I wrote a lot of missing Jest tests on both client and server code and assisted junior devs in advancing their understanding of Jest. I fixed long standing issues with production code

and e2e test memory leaks and was able to speed up tests significantly by freeing up system resources during long CI tests. I implemented observability of backend software using a Docker based local Opentelemetry pipeline to diagnose and resolve long standing issues with unpredictable concurrent queue processing. I also worked with the project's most senior engineer to restructure a fragile and poorly implemented microservice monorepo architecture, to sanitise module and package management, and simplify future development.

Jan 2007 to
Aug 2022

Independently
funded

Open Source research and development, Syntapse Ltd

This was a significant period of self-funded, self-directed research, development and discovery into open source technology funded by property and blockchain investment.

This was a full time engagement and my motivation was to assess and compare a wide variety of technologies and build a skills-set based on industry leading solutions and practices. After this long period of extensive assessment I have committed to specialising in React, Next JS, Nest JS, Redux and Docker development

Languages and platforms: Virtualbox, Linux, Docker, Ansible, Jenkins, Git, Javascript (including webpack, browsersync, angular (universal), Typescript, React, Vue, Next, Nest JS, Nuxt, RXJS, Redux, ReduxToolkit, npm, yarn, numerous cli, ngrx, ngx, jquery, express.js, node.js, socket.io, meteor, D3/C3 charting, backbone/marionette, underscore/lo-dash), PHP (Drupal, Symfony, Laravel, Silex), C++ (MFC, ATL, STL, and Boost libraries), C# and .Net, html5 (using haml, twig, underscore, handlebars, jinja2 template engines) and any css3 transpiler (sass, less, or stylus).

Remote communication web standards: OpenSSL, SSH, Websockets, NFS, HTTP, HTTP2, AJAX, REST, GraphQL, OpenAPI, JSON:API, Hydra, RPC and SOAP.

Data Storage and Management: YAML, JSON, XML, HTML, HAML or any arbitrary data format to design, code, and configure automated testing of entire projects (unit, component, module, integration, E2E), analyse resource usage, and manually debug remote source code. I can also install and configure both SQL and noSQL databases and optimise for scale and performance and I have a practical understanding of mysql, mongo and redis,

Jun 2005 to
Dec 2006

Freelance/
Contract

Senior Software Engineer: iMerge Ltd, Cambridge, England, UK

Technologies: Windows XP Pro / C# / Visual Studio .NET 3 / OODBMS / UML / SVN source control / Design patterns / Iterative, time-boxed Agile/scrum/XP development / Continuous integration with N-Unit automated build testing and Cruise Control.

Technical Activities: Software design and development of the iMerge SoundServer

S2000: a high-end audio sound server, incorporating multi-zoned playback, advanced play-list management, metadata network-lookup, and compatibility with third-party audio playback/archive systems. Co-designer of the media management middleware and underlying OODB using "Gang of Four" design patterns involving re-factoring an existing code base into patterns where necessary. XP test driven development, employing N-unit test modules for unit and integration testing and Cruise Control for automated hourly build and integration testing.

**Jun 2004 to
Dec 2004**

Senior Software Engineer: Motorola, Swindon, England, UK

Technologies: Windows 2000 / C# / Visual Studio .NET/ COM / SQLServer / ADO.NET / XML / UML / Time-boxed Agile/XP development

*Freelance/
Contract*

Technical Activities: Software development of Motorola's ASA (Advanced Software Applications) group's IOS Windows Collection software: a data collection and analysis tool for GSM cellular network analysis and optimisation. Extensive data modelling in UML, and C# implementation from pre-defined requirements. Implementation in C# on .NET platform on Windows 2000. Enhancements to existing design and software. Database design using Rational Rose. SQL data access through ADO.NET. Steep initial learning curve and heavy workload with short delivery times.

**Feb 2003 to
Sep 2003**

Senior Software Engineer: Motorola, Swindon, England, UK

Technologies: Windows 2000 / C# / Visual Studio .NET / COM / XML / UML / Rational Rose / Rational Clearcase / Rational Clearquest

*Freelance/
Contract*

Technical Activities: Upgrade of CDMA mobile network analysis software (project: CTPU). Extensive UML analysis/design and C# implementation from pre-defined requirements, to provide newer version of existing software. Implementation in C# on .NET platform on Windows 2000. Technical lead of international integration testing team (Motorola UK, India, Ireland), defining and monitoring network testing across three countries, in accordance with high level quality controlled software processes. Successful delivery of very high quality software. Heavy workload with short delivery times.

Business Achievements: Identified problems in communication between core business personnel, in-house developers, and offshore subcontractors. Provided mediation services. Attended project management meetings with internal management and offshore contractors to assess progress and provide technical assistance for late deliverables.

Jan 2002 to
Jan 2003

Senior Software Engineer: Xerox Ltd (Global Knowledge and Language Services), Welwyn Garden City, Herts, England, UK

*Freelance/
Contract*

Technologies: Windows NT / 2000 / C++ / stl / COM / ATL / XML / SAX / UML / HTML / Rational Rose / Visual Studio / Visual Sourcesafe

Technical Activities: Self-managed software development, working from own premises, reporting directly to senior management. Rework of failed offshore software development from requirements stage. Analysis, design and implementation of C++ COM-based data filters including support for XML, HTML, MS Word, SGML, Interleaf, Framemaker, Quark, and Pagemaker formats. Introduced novel ways to reuse developed technologies to provide significant gains on existing asset value.

Business Achievements: I advised a Global Implementation and Integration Manager on defining processes for bridging disparities between business stakeholders, developers and testers. Advised European sub-contract manager on software testing strategies. Defined testing roles for business personnel to improve staff satisfaction. Role involved interaction with wide variety of personnel including translators, middle and senior management. Continuation of previous service - see previous Xerox entry for more details.

Dec 2001
*Short term
consulting
Duration: 1
week.*

IT Consulting: Tiberone Technologies Ltd, Richmond, London, England, UK

Technologies: Windows NT/C++/stl/COM/ATL/Visual Basic/Visual Studio.

Technical Activities: Consultancy and troubleshooting bespoke telephony switching software tools. Conversion of COM components from VB into ATL COM (event driven connection points) to increase software performance. Quick problem analysis and solution delivered successfully.

Aug 2000 to
Jul 2001

Senior Software Engineer: Xerox Ltd (Global Knowledge and Language Services), Hertfordshire, England, UK

*Freelance/
Contract*

Technologies: Windows NT/ C++ /stl / COM / ATL / XML / SAX / UML / Rational Rose / Visual Studio

Technical Activities: Requirements capture, formal analysis, OO UML design and C++/COM implementation of a corporate level human-language translation software suite (project: Globaltrans). Business process analysis and design of large-scale, n-tiered, multi-user, distributed translation system. Intensive client facing role. Large user base. Large development team (30+ personnel). Working under pressure to tight commercial

deadlines.

Sep 1999 to
Aug 2000

SDLC and Systems Engineer: Graseby Dynamics Ltd, Watford, Herts, England, UK

*Freelance/
Contract*

Technologies: Windows NT / C++ / embedded software / RS232 / Labview / MFC / MS Visual studio / UML / Rational Rose/ Iterative Agile/XP development cycle.

Technical Activities: Sole software and systems engineer for real-time fluidics control software for an air pollution monitoring system. Working in a large multi-disciplinary engineering team (chemical, electrical, mechanical engineers). Organising and advising on systems and software processes to enhance the client's administrative infrastructure, in addition to real-time embedded systems development.

Oct 1998 to
Jul 1999

Software Engineer: Avery Berkel, Edgbaston, Birmingham, England, UK (EASAMS placement)

*Full time
employment*

Technologies: Windows NT / C++ / COM / ATL / MFC / MS Visual studio / USB embedded development.

Technical Activities: Commercial EPOS (electronic point of sale) distributed transaction control system for a large retail organisation. System was designed for scalability and performance. Also designed and implemented a bespoke USB 1.0 printer driver (in C++).

Sep 1996 to
Aug 1998

Lead Software Engineer: Marconi Communications Ltd, Marconi Way, Chelmsford, Essex, England, UK

*Full time
employment*

Technologies: Windows NT / C++ / COM / ATL / MFC / MS Visual studio / Borland C++ Builder / RS232

Technical Activities: Design and implementation of client-server remote user interface for wireless data and voice communications device. Also, software implementation of formal protocol specifications for wireless data communications. Lead a small team of engineers from Turkey and mentored in the use of Windows SDK and MFC.

Apr 1996 to Aug 1996 **Software Engineer: EASAMS Software Systems, Elstree Way, Borehamwood, Herts, England, UK**

Full time employment

Technologies: Unix / C++ / UNIX scripting.

Technical Activities: Pharmaceutical projection system. Scalable, highly algorithmic, multi-process, high performance system for forecasting usage of pharmaceuticals products. Designed and coded algorithms and distributed performance-critical processes in C++. Small team of senior developers.

Sep 1995 to Mar 1996 **Software Engineer: EASAMS Software Systems, Elstree Way, Borehamwood, Herts, England, UK**

Full time employment

Technologies: Windows for Work-groups/C++/Visual Studio/RCS version control.

Technical Activities: Designed and developed diagnostic/maintenance sub-systems for the In Flight Aircraft Entertainment System (installed on the new Boeing 777's and retrofitted onto 747's). Large development team (circa 25) and very robust software processes. Excellent introduction to software process control.

Sep 1994 to Aug 1995 **Graduate Software Engineer: Logica UK PLC – Great Marlborough Street, London, England, UK**

Full time employment

Technologies: Using C++/COBOL/TAL/Unix/VMS

Technical Activities: COBOL developer/tester on a number financial software projects (3 months) including CHAPS. Also developed software on a Reuter's media switch/router in C++ as a port with enhancements from VMS to UNIX (9 months).

Sep 1993 to Aug 1994 **Lecturer & Project supervisor: Middlesex University – Bounds Green Road, Bounds Green, London, England, UK**

Freelance/contract

Role: Lecturer/Project supervisor in Electronics/Computing/OO/Digital design. Conducted lectures in a variety of subjects to groups of 30-60 students (mainly undergraduates) in large amphitheatres, classrooms and technical laboratories. Devised and managed a 12-week long project in computer programming for an MSc conversion course, as well as a variety of lectures in C++, OO, digital electronics design, and analogue electronics design.

Oct 2000 to Dec 2001 **Part Time Lecturer: Oakland's College, Welwyn Garden City, Herts, UK**

Full time
employment

Role: Tutor/lecturer to groups of 16+ students of all ages. Authored and executed courses in OO/C++/ C. Created original course material based on curriculum standards. Courses are now in print and are now in use as the standard course material for subjects taught. Duration: 3 x 12 week semesters

Education History

Higher
Education

Middlesex University, Bounds Green Rd, London N11, England, UK

(1990-1993)

1st Class BEng. Hons with Distinction in Electronics Engineering. Awarded Institute of Electrical Engineers Associate membership. Final year distinction for project in Neural Network Image Recognition using standard RAM technology as a neural memory. Elected as Student Representative in the final year acting as intermediary between students and academic staff on a variety of issues.

Further
Education

Southgate College of Further Education, Southgate, London, England, UK

(1988-1990)

BTEC National Diploma in General Engineering. A range of course material over two years ranging from mechanical engineering and manufacturing to mathematics, electronics engineering and computer science. Overall merit awarded.

Secondary
Education

Friern Barnet County School, Hemington Avenue, London, England, UK

(1982-1987)

9 GCE O levels: Computer Studies (B), Art (B), Mathematics (B), Arithmetic (B), Chemistry(C), Physics(C), English (B), English Literature(C), Geography(C)

References available on request, or visit:

<https://syntapse.co.uk> - general service information.
<https://next.syntapse.co.uk> - Next 14, RTK and websocket feature demonstrations.
<https://auth.syntapse.co.uk> - an authenticated NextAuth site with custom email 2FA authentication.
<https://maplio.syntapse.co.uk> - a fully functional multi-user GPS enabled AR application
<https://capacitor.syntapse.co.uk> - a Next JS site with Ionic components converted into an app.
<https://qwik.syntapse.co.uk> - a Qwik test site with React integration
<https://astro.syntapse.co.uk> - an Astro test site with Solid, React and Qwik integration