Tom **Leverstone**

SENIOR SOFTWARE ENGINEER

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Summary

I'm a Senior Software Engineer seeking my next challenge where I can leverage my technical and leadership skills to deliver high-impact outcomes. I've consistently developed and delivered strategic solutions aligned with business objectives, from launching an AI-powered Q&A product in weeks to improving system performance and reducing cloud costs. I thrive in environments where I can own projects from inception to completion, collaborate across teams, and delight users. I'm excited to find a role that offers opportunities to mentor others and encourages broadening my technical skills through hands-on work.

Skills

Languages	Python, JavaScript, TypeScript
Backend	FastAPI, Django
Frontend	React.js, Next.js
AI	Retrieval-Augmented Generation, Evaluation of AI Applications, LLM-as-a-Judge
Databases	MariaDB, Apache Solr, Milvus
Cloud	AWS (S3, EC2, RDS, Elastic Beanstalk), DigitalOcean (Droplets, AppPlatform), Heroku/Dokku
CI/CD	GitLab CI, GitHub Actions, Travis CI
Other	Git and GitHub/GitLab, Docker and Docker Compose, Linux

Experience

Mintel *January 2024 - Present*
SENIOR SOFTWARE ENGINEER *London*

- Collaborated within an agile Scrum team to rapidly develop and launch an AI-powered question-and-answer product in a six-week timeframe, achieving first-to-market status.
- Implemented a Retrieval-Augmented Generation (RAG) system on an existing Django service, using OpenAI GPT-4-Turbo, Milvus for vector search, Apache Solr for keyword search and access control, and S3 for storage.
- Led the data indexing pipeline development to read content from S3, enrich with metadata, chunk, generate embeddings, and index into Milvus.
- Led the design and development of a new backend service (using FastAPI, LangChain, and MariaDB) to enable rapid feature iteration and improved scalability. The design utilizes Server-Sent Events (SSE) to stream typed JSON objects, interleaving answer text, citations, media, and charts for informative and engaging interfaces.
- Optimized the service performance, achieving 6x throughput increase by replacing LangChain Expression Language with native AsyncIO solution and resolving a bottleneck in a third-party open-source library, supporting a 7x user base increase without adding resources.
- Initiated and led a cross-department innovation workshop; the top-voted project was added to the roadmap and delivered, demonstrating ability to bridge technical possibilities and business needs.
- Investigated vector databases to recommend and lead a migration from Milvus to Solr, achieving >50% reduction in cloud infrastructure costs while maintaining performance.
- Optimized the indexing pipeline, cutting processing time from three hours to under ten minutes by processing only the daily difference. This enabled a shift to daily (vs. weekly) data updates, providing users with up-to-date information.
- Led the development of an AI quality evaluation suite to measure answer relevancy, groundedness, and traditional information retrieval metrics; incorporating LLM-as-a-Judge (OpenAI GPT-4o) for automation; providing data-driven insights for continuous improvement like prompt engineering, model updates, and retrieval adjustments.
- Enhanced system observability by integrating OpenTelemetry, Jaeger, and Sentry.
- Mentored two junior software engineers, focusing on personal growth and career aspirations, while also advising on software design principles and best practices.

Mintel
Software Engineer
August 2021 - December 2023
London

- Developed and maintained a full-stack web application using Django, React, and TypeScript.
- Led the development of a TypeScript/React Single Page Application (SPA) for consuming media-rich long-form content, including the design and implementation of a Django backend API.
- Improved code quality and team efficiency by enhancing documentation, improving testing (e.g., advocating for more idiomatic use of pytest), and refining the alerting system (Sentry).
- Collaborated effectively with adjacent teams, contributing code to accelerate feature development and resolve bugs in shared dependencies. This involved attending cross-team meetings and contributing to shared code repositories.

XtremIO
Python Backend Developer
July 2014 - September 2016
Israel

- Developed and maintained the management server for an enterprise storage array, focusing on automated maintenance procedures such as system upgrades, hardware replacements, restores, and migrations.
- Designed and implemented reactive command-line UI components that reduced operational errors by guiding users through complex operations with a clear and intuitive UI. These included progress bars with stage information, pushed from the backend, and utilities for initiating prompts from the backend.

Education

Queen Mary University of London
PhD in Computer Science
September 2016 - August 2021
London

- **Thesis:** Head Movement in Conversation. Supervised by Prof. Patrick Healey and Dr. Julian Hough.
- Designed and ran software skills workshops: Intro to Code with Python/Processing, Data Analysis with Python and Pandas, and Version Control with Git.
- Served as a teaching assistant for "Interactive Digital Multimedia Techniques", "Parallel Computing", and "Arts Application Programming" modules.
- Organised the Virtual Reality Special Interest Group.

Bar-Ilan University
MA in Music Technology
2011 - 2015
Israel

- **Thesis:** An Audio-Only Augmented Reality System for Social Interaction. Supervised by Prof. Eitan Avitsur and Dr. Nori Jacoby.
- Achieved exceptional distinction.

Haifa University
BSc in Mathematics and Music
2006 - 2011
Israel

- Participated in the excellence programme of the Department of Mathematics.

Activities and Interests

- I maintain a technical blog and personal website on leverstone.me, covering practical software techniques, AI explorations, tech book reviews, tutorials, and personal projects.
- I run a technical book club over a mailing list on groups.io/g/tech-book-club, where we read and discuss books on software engineering and technology to improve our technical skills.
- I run a monthly board games night at my current workplace. If you don't have one yet, I can help you set one up!
- I raise two young children who I adore for their curiosity and joy.
- In the remaining spare time I'm collecting and maintaining hobbies: bouldering, cycling, playing board games, and playing bass guitar and electronic music.