

Emiliano Schmid

PRINCIPAL C++ ENGINEER | REAL-TIME & DISTRIBUTED SYSTEMS

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TECHNICAL PROFILE

Principal-level C++ engineer and software architect with 20+ years designing and implementing performance-critical production systems. Deep experience in concurrency, memory and ownership, template metaprogramming, streaming protocols, computer vision, distributed event architectures and hardware integration. Works end to end - from low-level profiling and protocol behavior through service boundaries, deployment and observability - with a bias toward the simplest design that preserves performance, reliability and evolvability.

Focus: Modern C++ | Concurrency and low latency | Real-time video | Distributed systems | Computer vision and ANPR | Protocols and device SDKs | Production engineering

SELECTED ENGINEERING EXPERIENCE

DANAIDE | Chief Software Architect & Lead Developer

2009 - Present

Video management, analytics and public-safety platforms

- **UltraIP VMS** - Architected and implemented a scalable platform for continuous video ingest, streaming, recording, event handling and analytics integration across urban deployments and thousands of cameras.
- **Central ANPR** - Designed the architecture for high-volume plate recognition; largest installations process millions of vehicles per day with camera calibration, traceability, event distribution and operational monitoring.
- **Recognition and live analytics** - Built facial-recognition and real-time analytics components that overlay metadata on live feeds and generate actionable events and alarms.
- **C++ platform engineering** - Developed ORM and serialization frameworks, asynchronous/concurrent task components, module systems, drivers and protocol adapters using STL, Boost, templates and metaprogramming.
- **Streaming and protocols** - Worked across RTP/RTSP, WebSockets, MP4, HLS, MPEG-DASH, H.264, MJPEG, ONVIF, FFmpeg/LibAV, Live555 and vendor camera SDKs.
- **Distributed architecture** - Designed centralization and event systems using messaging, caching and persistence, with attention to resilience, observability and long-term evolution.
- **Hardware integration** - Implemented integrations for cameras, biometric devices, sensors, microcontrollers, IoT and augmented-reality hardware where field behavior diverged from documentation.
- **Delivery and operation** - Introduced GitLab CI, Docker, Kubernetes, GitOps and Ansible; promoted repeatable builds, containerization and automated deployment across products.
- **Technical leadership** - Built and mentored the development team, facilitated architecture decisions and remained the escalation point for complex performance, protocol and systems issues.

ID GAMING / ID INTERACTIVE | C++ Game Developer & Platform Maintainer

2005 - 2009

High-reliability casino game systems

- Designed and delivered multiple games end to end, including mathematical models, C++ application logic, LASH/Flash presentation, utilities and hardware/software integration.
- Maintained the shared game platform and extended the proprietary LASH language with type inference, higher-order and generic functions, and enumerated types.
- Developed in an environment that demanded deterministic behavior, platform stability and rigorous quality because software directly affected live financial operation.

EARLY SOFTWARE PROJECTS | Full-Stack and Independent Developer

2004 - 2005

- Built a rule-driven 24-hour television scheduling application as sole developer and created an object-oriented PHP view framework for a Buenos Aires City Government budget-system modernization.

INDEPENDENT ENGINEERING & APPLIED AI

- **TicketMage** - Current AI-powered Jira operations product with natural-language chat, real-time voice, Telegram, file generation and permission-aware actions.
- **Language and theory** - Built a compiler from a custom language to assembly and a translator from Turing-machine descriptions to 3SAT expressions.
- **Systems and graphics** - Built a 3D engine from scratch, an ONVIF Android IP-camera application, trading engines and a collaborative crowdfunding system with a secondary market.
- **Technical writing** - Publishes on cache behavior, prefetching, SIMD, RAIL, ownership, templates, architectural trade-offs, hardware integration and critical use of AI.

TECHNOLOGY

C++: Modern C++, STL, Boost, RAIL, ownership, templates, metaprogramming, macros, concurrency, memory management, low-level optimization, profiling

Languages and frameworks: C#, .NET, ASP.NET, Entity Framework, Python, JavaScript, Java, PHP, Go

Video and networking: TCP/UDP, RTP/RTSP, WebSockets, HLS, MPEG-DASH, H.264, MJPEG, ONVIF, FFmpeg/LibAV, Live555

Distributed and data: NATS, Redis, PostgreSQL, SQL Server, MySQL, SQLite, MongoDB; event systems, caching, persistence and observability

DevOps and systems: Linux, Docker, Kubernetes, GitLab CI, GitOps, Ansible, AWS/virtualization exposure

Engineering practices: TDD, pair programming, Extreme Programming, adapted Scrum, iterative architecture and measurement-driven optimization

EDUCATION**UNIVERSIDAD NACIONAL DE LA PLATA (UNLP)** | Licenciatura en Informática

1998 - 2004

Teaching Assistant: Functional Programming and Formal Languages | LIFIA research scholarship