Dmitry Borovikov, PhD
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A hands-on, technology professional with over 30 years of diverse technical and business experience, with emphasis on the architecture, design, implementation, management, and business continuity of large, distributed enterprise systems. Extensive project, people, vendor relationship, and budget management experience. Excellent communication and interpersonal skills.

MAJOR AREAS OF EXPERTISE:

Systems and Software Design & Implementation / AI / Large Language Models / Low-latency Trading & Messaging Infrastructures / Algorithmic, Quantitative Trading & Execution / Video Processing / Cloud Computing / New Business Development

PROFESSIONAL EXPERIENCE:

January 2022 - present - Enterprise AI Solutions.
Large Language Models (LLM) for business - quantizing, fine-tuning. RAG (Retrieval Augmented Generation), vector database, hybrid database, PostgreSQL. Local semantic search, cognitive search and text generation solutions. OpenAI, ChatGPT, LLaMa, Huggingface tools, models & APIs, Ollama, LangChain, llama.cpp.

2021-Present: Tacticus Trading Inc. Support, customization, and further development of multi-asset, multi-strategy algorithmic research and trading platform. Implementing of Crypto Currencies research and trading facilities. Time Series ML-based modeling. Main technologies: C#, WPF, MS SQL, LINQ, XGBoost, etc.

2022-Sept 2023: BixBeta.com. Board Advisor, VP Engineering. Crypto-currencies operations for non-profit organizations. Responsible for architecture, design, and implementation. Main technologies: Linux, Python, Rust, JavaScript, MySQL, crypto exchanges API's. AI-enabled crypto accounting and payment/donation. Generative AI to add Natural Language Interface to analytics and reporting.

2012 - 2022: Gnural Net. Inc, Chief Technology Officer. Build High-Definition studio-oriented internet based video communication platform ("Live To Air"). Platform includes a set of highly optimized audio/video desktop, Web-based, and iOS-based applications allowing studio operator to bring remote internet guests to television production environment. Unique features include but not limited to: Studio operator friendly user interface, up to 64 simultaneous 2-way HD video connections, call-in management system allow creating and maintaining queues of guests who would like to participate in video talk shows. Internet based video transport was realized on top of WebRTC as well as using of Skype SDK. Main technologies: GPU video processing, Nvidia Video Codec SDK, H.264/5, VP8/9, SRT, Direct Show, DirectX, WinDDK, WebRTC, MFC, C++, Objective C, AWS cloud-based technologies, Web Sockets, C#, WPF, LINQ, HTML5, JavaScript, JQuery, CSS, Apple xCode, C++/.NET integration.

2006-2012: Horton Point, LLC. Chief Technology Officer. Performed architecture, design and implementation of the company's proprietary multi-asset, multi-strategy algorithmic research and trading platform. The platform allows seamless research, back-testing, optimization, and distributed strategies deployment and includes proprietary Market Data storage database, several distributed services and set of tools such as trading blotter and system management user interface. System provides integration with various market data providers, news providers, brokers, exchanges, and algorithmic platforms.
Trading strategies: research, design, and implementation: market-making, trend-following, multiple factor correlation, co-integration, tech analysis and event-driven strategies. Created a range of auto optimizing strategies using various machine-learning technics including neural networks and genetic algorithms. Experience with latency sensitive strategies: high-frequency trading infrastructure. Financial Instruments: Equities, Options, Futures, Forex, Treasures, CDS, FX Swaps

2004 – 2006: Morgan Stanley. Senior developer and project leader for a number of Client Service - related projects. Architecture, design, and implementation of centralized client reference data repository (parties, contacts, accounts, coverage, other complex Prime Brokerage specific relationships, and entitlements infrastructure. System contains "intelligent" database replication application that allows maintaining data integrity across databases with different schema. "Consequence Manager" prevents flowing potentially dangerous events into downstream systems without competent person approval.

Prime Brokerage Work Queue – maintaining, implementing new futures and re-engineering of this business-critical application that provides reps a way to see exactly what tasks they must do each day, ensuring that no critical task stays incomplete.

2000 – 2004: **Reuters Research Inc.** (formerly **Multex**, acquired by **Reuters Group**), Senior Developer, Reuters Research R&D. Investigating new information technologies in financial industry. "Full life cycle" responsibility: distributed architecture, design, implementation, and deployment of "Financial Information Navigation System" (FINS) – system dedicated to categorizing and searching financial research documents primarily based on concepts discussed inside the document. (US Patent #20080229187 "Methods and systems for categorizing and indexing human-readable data").

2000-2002 "Full life cycle" responsibility: Architecture, design, and implementation of Multex Portal Builder – a system that is dedicated to composing XML-based live financial information according to dynamically managed user preferences. Multi-threaded acquisition and active cashing of underlying data achieve system performance. Web-based user interface provides excellent way to create and configure user pages and collection of hierarchical properties and constraints. System was implemented using original concurrency and cache management techniques. Comprehensive clustering service provides full system failover capability and scalability. Last release includes dynamic generation of Java classes according to given XML schema.

1999- 2000: POP-Systems Inc., Project Leader. Architecture, design, and implementation of the "POPFAX.NET" – Internet-based Fax delivery system.

1996-1999 Mount Sinai Medical Center. Research Scientist
Mathematical modeling of Neural Networks. (Experimental work and Visual C++ programming).

1984-1996 National Cardiology Research Center, Russia.
Project leader - several projects dedicated to computer processing of experimental data in real time (real time data acquisition and processing, image acquisition and processing). Hardware and software design of medical equipment.
Project leader - mathematical modeling of coronary blood circulation. Project Included linear and non-linear modeling, retrieving model parameters from experimental data online. Supervising of graduate and postgraduate students.

EDUCATION & CERTIFICATIONS:
PhD Physiology/Applied Computer Science.
MS Moscow Institute of Physics and Technology (MIPT).
BEA Certified Developer for Weblogic Server.
Sun Certified Developer for Java 2 Platform.
ASA certifications 101-107.

PROGRAMMING LANGUAGES: C#, C/C++, Rust, Objective C, Java, SQL, Perl, Python, JavaScript, HTML5, x86 Assembler, etc.
DATABASES: MS SQL, Sybase, DB2, MySQL, Oracle, MS Access, PostgreSQL