

# Curriculum Vitae

**Bert Schiettecatte, MSc/CS, MA/MST**

Senior Software & Hardware Engineer, Computer Scientist, Expert Witness

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(see section below for expert witness and litigation support experience)

## Professional Summary

- Experience testifying as an expert witness in intellectual property litigation matters
- Experience explaining complex topics to attorneys and non-technical audiences
- More than 20 years experience designing and developing algorithms, software and hardware
- More than 20 years experience in the professional audio and music technology industry
- More than 20 years experience developing (audio) digital signal processing (DSP) systems
- More than 20 years of experience writing software in multiple programming languages
- Developed software for desktop, server, embedded and mobile operating systems and platforms
- Founded a successful small audio consumer electronics brand and startup business
- Successfully consulted on, developed and delivered complex software projects for larger companies
- Designed, developed, and launched several successful consumer electronics products
- Designed, developed, and launched an award-winning human input device
- Designed, developed, and launched first commercially available tangible user interface (TUI)
- Published academic papers on signal processing and human-computer interaction topics
- Developed proprietary trading software and strategies and traded in crypto and futures markets
- Fluent in English, Dutch, French and experienced working remote with people from around the world

## Professional Experience

Co-founder and Chief Computer Scientist, **Noisetron LLC, Burlingame, CA, January 2013 - present**

- Analysis, research, due diligence, and expert witness testimony services in software- and hardware related litigation, including patent infringement, theft of trade secrets, breach-of-contract, and other matters. Analysis and review of software source code. See section below.
- General hardware and software engineering and consulting services
- System and software architecture and design, implementation scoping and planning
- Bare metal and embedded Linux, drivers, firmware, and applications in C/C++
- Performance and latency optimization, multi-threading issues and parallel workloads
- Realtime (audio) signal processing and data processing related challenges
- Wrote low latency video processing software for well-known large consumer electronics company
- Exchange market data feed and order entry integration (CME, Coinbase Pro, etc.), data loggers
- Low-latency algorithmic trading frameworks, back-testing and large-scale data visualization tools

Founder & Editor, **The Hot Seat, Los Angeles, CA, September 2022 – 2024**

- Interviewed attorneys about their work and careers in intellectual property law.

Co-founder, **Stealth Proprietary Trading Startup, Los Angeles, CA, 2018 - 2023**

- Developed high-frequency trading strategies for the crypto (Coinbase) and futures (CME) markets
- Developed trading software in javascript and C++, implementing order books, trading logic, risk management, order entry and other essentials that go into a live trading application
- Integrated with Coinbase via javascript and later via REST API, Web socket API using Boost::Asio in C++
- Integrated with CME via Rithmic RAPI+ and DiamondApi low latency APIs in C++

- Development of trading signals using time series data analysis and processing
- Developed and maintained market data visualization and strategy development tools (C++, OpenGL)
- System administration and server tuning for linux trading server co-located at the CME (RHEL, Solarflare)
- Monitor live trading sessions and discuss daily P&L with team
- On-boarding with FCMS, fee structure negotiation, risk management discussions

Co-founder, **Percussa, Brussels, Belgium & Los Angeles, CA, January 2004 - present**

- Developed pro-audio consumer electronics brand from scratch and engineered and launched multiple successful and innovative products used by thousands of professionals worldwide.
- Designed and developed 3 revisions of the first commercially available wireless tangible user interface (Percussa AudioCubes). Developed wireless sensor/communication system (2.4GHz)
- Designed and developed control surface with wireless radio and USB HID I/O (Percussa Remote)
- Designed and developed hardware modular sound synthesis engine featuring quad core A17 SoC, widescreen IPS display, MIDI I/O and multichannel audio I/O, USB host & device ports, encoders, and pushbuttons, customized linux OS and drivers (Percussa Engine)
- Designed and developed eurorack versions of hardware modular sound synthesis engine featuring eurorack voltage levels, multiple AKM DACs and ADCs and an FPGA and multichannel USB class compliant audio I/O (Percussa SSP and Percussa mSSP)
- Wrote all firmware and applications in C++ (with JUCE). Developed cross platform HID library.
- Developed real-time multicore audio DSP code for sample playback, granular processing, wavetable oscillators, and more. Developed multichannel direct to disk recorder.
- Schematic capture and board layout, industrial and mechanical design for all products.
- Selected and sourced parts for production, coordinated with asian and european suppliers and board assembly partners to manufacture products. Developed testing procedures.
- Recorded and edited videos for products (iMovie and later Davinci Resolve)
- Built websites in PHP and integrated with 3<sup>rd</sup> party APIs of payment processing companies (Stripe, Paypal) and social media companies (Twitter, Facebook)
- Developed press relations and obtained coverage via reviews and interviews in magazines such as Future Music and Beat
- Designed and coordinated trade show booths at NAMM, Musikmesse, and Superbooth shows
- Demos for press, dealers and end users at NAMM, Musikmesse and Superbooth shows
- Raised funding via kickstarter campaigns for Percussa products, including one funded for 314%

PhD Researcher, **Vrije Universiteit Brussel (VUB), Belgium, 2003 - 2004**

- Worked on research in new musical interfaces
- Worked on outside signal processing projects
- Published and presented papers internationally

PhD Researcher, **Katholieke Universiteit Leuven (KUL), Belgium, 2002 - 2003**

- Developed novel waveguide mesh algorithm aimed at real-time reverberation
- Published and presented papers internationally

Software Engineer, **ICON, Belgium, 1999**

- Developed custom windows based server monitoring application, which used an SMS gateway to notify system administrators when web servers became unavailable.
- Developed windows service and control panel DLL written in C using COM to control SMS gateway and to send emails. Delivered stable and working version in less than a month.

Software Engineer, **Allmansland, Belgium, 1998 - 1999**

- Built web applications using HTML, PHP, Perl and MySQL, deploying on linux servers.

Software Engineer, **im@gic, Belgium, 1995 - 1996**

- Built web applications using HTML, PHP, Perl and MySQL, deploying on linux servers. Clients included SBB, Radio Vlaanderen Internationaal, Samsonite, ...

## Education

### **Master of Arts in Music, Science and Technology, CCRMA, Stanford University, 2001 - 2002**

- Designed software and hardware for 5 revisions of an electronic musical interface - an optical Laser Harp, together with Eto Otitigbe (mechanical engineering) and Luigi Castelli (sound design).
- Wrote firmware for Atmel microcontrollers outputting MIDI, designed sensor system featuring infrared and ultrasonic sensing, and low wattage laser beams, wrote wireless communication firmware and Windows host application to generate MIDI data.
- Developed tap dancing MIDI controller system and wrote Windows host application outputting MIDI. Collaborated with Prof. Thomas Defrantz, Eto Otitigbe (mechanical engineering) and Luigi Castelli (sound design) to integrate the system and run it live.
- Coursework in HCI, electronics, studio recording, signal processing, composition, etc.

### **Master of Science in Computer Science (summa cum laude), Vrije Universiteit Brussel (VUB), 1997 - 2001**

- Developed QOrchestra, graphical MPEG4 structured audio development tool capable of generating SAOL files (similar to CSound), using C++ / Qt framework
- Developed drum machine software featuring generative programming in C++, targeting PocketPC / Windows CE (StrongARM SA-1110)
- Developed simple version control system using Scheme, C++ and MySQL
- Developed text-oriented adventure game in Scheme
- Wrote kd-tree implementation in java
- Wrote genetic programming tool in Scheme to find parameters for a subtractive synth to mimic recorded sounds in WAV format
- Coursework in linear algebra, discrete math, statistics, formal methods, compilers, numerical analysis, computer graphics, software engineering, audio signal processing, artificial intelligence, ...
- Graduated with Master's thesis titled "*Software Engineering in Real-Time Audio Applications*"

## Expertise

- Testifying expert witness with intellectual property litigation experience
- Experience explaining complex topics to attorneys and non-technical audiences
- Software source code review and analysis for intellectual property litigation, including patent litigation and trade secret misappropriation matters
- Debugging and finding flaws, weaknesses and errors in software source code
- Software architecture and performance optimization, tracing and analysis
- Computer forensic analysis (disk images, raw file data, file formats, file systems ...)
- Video forensic analysis
- Audio forensic analysis
- Programming in multiple languages including C, C++, javascript, java, scheme ...
- Floating and fixed point math software source code
- Database query languages (SQL)
- Implementing and optimizing (audio) digital signal processing algorithms and systems
- Implementing various music synthesis building blocks (additive, wavetable, FM, granular, ...)
- Working knowledge of professional audio and music technology equipment

- Implementing video processing software (opencv, google mediapipe)
- Implementing embedded device firmware
- Implementing wireless communication protocol firmware
- Implementing proprietary trading software in crypto and futures (CME) markets
- Implementing software for financial market data visualization and analysis
- Development and backtesting of proprietary trading strategies
- Mac OSX, Windows, and Linux operating systems
- Desktop, server, embedded and mobile hardware platforms
- ARM processors including Cortex-A17 and Cortex-A35
- Nordic Semiconductor microcontrollers and wireless radio ICs
- Schematic capture and Printed Circuit Board (PCB) layout of embedded systems
- Analysis, bring-up and debugging of devices and embedded hardware systems
- Mechanical design of consumer electronics using solid modeling software (Autodesk Fusion 360)
- CNC programming and CNC router operation using Autodesk Fusion 360 and linuxcnc
- Version control systems (svn, git)
- Build systems (make, cmake, bash)
- Linux command line tools
- Compilers and IDEs on Mac OSX, Windows and Linux platforms (xcode, visual studio, gcc, g++ ...)
- Open source and linux based tools for computer forensic work
- Imaging and analyzing disks, file systems and raw file data for evidence
- Fluent in English, Dutch and French

## Expert Witness and Litigation Support Experience

Testified in deposition on trade secret misappropriation and breach of warranty matters; Consulted on various patent litigation matters; wrote declarations and reports for trade secret misappropriation and patent litigation matters involving software; reviewed software source code in patent litigation matters;

Technical areas include software and source code, hardware including laptops, servers, embedded systems, machine control software, audio speakers, disk images, raw file data and file systems, database technology, cryptocurrency mining systems, linux kernel, storage technology, website lead capture and marketing technology

### Testifying Expert

- **ELITE SEMICONDUCTOR, INC. v. ANCHOR SEMICONDUCTOR, INC.**
  - Jurisdiction: U.S. District Court FOR NORTHERN DISTRICT OF CALIFORNIA SAN JOSE DIVISION
  - Case Number: 5:20-cv-06846-EJD (NC)
  - Counsel: Thoits Law
  - Nature of Suit: TRADE SECRET MISAPPROPRIATION
- **PNS HOLDING COMPANY v. INFINITE AUDIO SYSTEMS INC.**
  - Jurisdiction: CIRCUIT COURT OF THE 11th JUDICIAL CIRCUIT, MIAMI DADE COUNTY,

## FLORIDA

- Case Number: 2019-0022424-CA-01
  - Counsel: K/S Attorneys at Law
  - Nature of Suit: Breach of Contract, Breach of Implied Warranty
- **ALTO DYNAMICS LLC v. VACASA LLC, and VACASA REAL ESTATE LLC**
    - Jurisdiction: U.S. District Court FOR THE WESTERN DISTRICT OF TEXAS WACO DIVISION
    - Case Number: 6:22-cv-01286
    - Counsel: Rozier Hardt McDonough PLLC
    - Nature of Suit: PATENT INFRINGEMENT

## Consulting Expert

- **Provisur Technologies, Inc. v. Weber Inc., et al.**
  - Jurisdiction: U.S. District Court For Western District of Missouri (St. Joseph)
  - Case Number: 5:21-cv-06113
  - Counsel: Erise IP P.A.
  - Nature of Suit: PATENT INFRINGEMENT
- **Coinmint v. Katena**
  - Jurisdiction: American Arbitration Association
  - Case Number: 01-22-0001-7627
  - Counsel: Gordon Rees Scully Mansukhani, LLP
  - Nature of Suit: Breach-of-Contract
- **Provisur Technologies, Inc., v. Weber, Inc., Textor, Inc., Weber Maschinenbau GmbH Breidenbach, Weber Maschinenbau GmbH Neubrandenburg, and Textor Maschinenbau GmbH**
  - Jurisdiction: U.S. District Court for the Western District of Missouri
  - Case Number: 5:19-cv-06021
  - Counsel: Sterne, Kessler, Goldstein & Fox P.L.L.C.
  - Nature of Suit: PATENT INFRINGEMENT
- **Sequoia Technology LLC v. Dell, Inc., Dell Technologies Inc., Hewlett Packard Enterprise Co., Hitachi Ltd, and Super Micro Computer**
  - Jurisdiction: U.S. District Court for the District of Delaware
  - Case Number: 1:18-cv-01127
  - Counsel: One LLP
  - Nature of Suit: PATENT INFRINGEMENT

## **Technical Vetting & Due Diligence Consulting**

- Investment of Tenex Capital Management in Suited Connector, Sep 2021 – Oct 2021  
Technology: Lead Generation & Online Marketing Platform

## Teaching Experience

- Assistant Teacher, **Vrije Universiteit Brussel (VUB), Belgium, 2003 - 2004**  
TA for undergrad signal processing course
- Assistant Teacher, **Katholieke Universiteit Leuven (KUL), Belgium, 2002 - 2003**  
TA for undergrad information theory course

## Publications

- Bert Schiettecatte, 2024, August. How Memory Usage Patterns Can Derail Real-time Performance. In Interrupt Blog by Memfault.
- Bert Schiettecatte and Jean Vanderdonckt. 2008. AudioCubes: a distributed cube tangible interface based on interaction range for sound design. In Proceedings of the 2nd international conference on Tangible and embedded interaction (TEI '08). Association for Computing Machinery, New York, NY, USA, 3–10.
- Schiettecatte, B., 2004, April. Interaction design for electronic musical interfaces. In CHI'04 Extended Abstracts on Human Factors in Computing Systems (pp. 1549-1549).
- Schiettecatte, B., Nackaerts, A. and De Moor, B., 2003. Real-Time Acoustics Simulation using Mesh-Tracing. In ICMC.
- Nackaerts, A., Schiettecatte, B. and De Moor, B., 2003. Non-linear guitar body models. In ICMC.

## Presentations

- “Tips for high quality software source code reviews”, Orange County Bar Association, Intellectual property / tech law section, Friday December 13<sup>th</sup>, 2024
- “Tips for high quality software source code reviews”, Michel IP Inn of Court Meeting, October 28<sup>th</sup>, 2024

## Awards and Memberships

- Quartz Max Mathews Award for AudioCubes, Quartz Awards Organisation, 2009
- AES Educational Foundation Grant, Audio Engineering Society (AES), 2001
- BAEF Fellowship, Belgian American Educational Foundation (BAEF), 2001
- Fullbright Honorary Fellowship, Fullbright Program, 2001
- IEEE Membership, IEEE Computer Society Membership
- AES Associate Membership

## Other Qualifications

Fluent in English, Dutch, French and experienced working remote with people from around the world

## References

References from industry, academia, and law firms available upon request.