

**HERB LACEY**  
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## **EDUCATION**

Master of Computer Science, North Carolina State University, Raleigh, NC  
BS Electrical Engineering, cum laude, North Carolina State University, Raleigh, NC

## **BAR ADMISSIONS**

US Patent & Trademark Office, Reg. # 72393

Herb Lacey is licensed to practice patent law in patent cases before the United States Patent and Trademark Office. Herb is experienced in all phases of US & PCT patent application preparation and prosecution, including the software, electrical, electronic, and mechanical arts, in addition to research and development experience in the computer, software, electronic, and electrical fields. Herb has drafted and prosecuted hundreds of patent applications for subject matter including electrical, electronic, networking, cloud services, database systems and methods, cryptographic systems and methods, mobile devices, mobile apps, blockchain applications, machine learning, artificial intelligence, predictive analytics, audio / image / video processing, wireless systems including Wi-Fi and cellular technologies, autonomous systems, medical imaging, fraud detection, security systems, and mechanical apparatus, including various consumer accessories, tools, and systems for assisting individuals with disabilities. In addition, Herb has prosecuted to allowance patent cases comprising computer-implemented subject matter which faced 35 USC 101 rejections over Bilski and Alice; and, he is an inventor, with several patents in network communications.

## **REPRESENTATIVE ARTS**

Embedded and Real-time Systems, Networking (Protocols / Security / Infrastructure), Digital Security, Digital Signal Processing, Error Detection / Correction, Digital Filters, Modulation / Demodulation, Audio Signal Processing, Audio and Video Codecs, Video Processing, Streaming Multimedia, VOIP, Image Processing, Machine Vision, Object Detection / Tracking, Video / Audio Compression, Wireless (GPS / GSM / HF / VHF), Location Tracking, Reverse Engineering, Antennas, Wireless / Wireline / RF / Audio / Ultrasonic / Voiceband Modems, IoT, Medical Devices and Systems, Robotics, Speech Processing (Identification / Recognition / Transcription), Neural Networks, Machine Learning, Data Mining, Intelligent Grid, Cluster Computing, Software, AI, Blockchain, Cloud Systems, Digital and Analog Electronics, Semiconductors, Energy Harvesting, Low Power Hardware and Software Design, Parallel Computing, Linux Appliances, Virtualization, Semiconductors.

## **CERTIFIED TECH SKILLS**

(BrainBench / Previsor)  
Digital Signal Processing  
Embedded Systems  
Cloud Computing  
Programming Concepts  
C Programming  
Assembly Language

## **MEMBERSHIPS**

Eta Kappa Nu (Beta Eta Chapter)  
National Association of Patent Practitioners

## **RESEARCH AND DEVELOPMENT**

*Protocols Engineer:* Developed Data, Physical, and Management protocols (ITU-T, IETF)

*Data Mining Engineer:* Developed tools for real-time and off-line analysis of a variety of data types

*Software Engineer:* Developed mission-critical intelligent grid, measurement, and control applications

*Multimedia Engineer:* Developed video, audio, image, and signal processing analysis tools

*Reverse Engineer:* Analyzed, reverse-engineered, and modified embedded/Linux/Windows software

*System Engineer:* Directed engineering teams designing and developing complex systems

*Firmware Engineer:* Designed embedded software for communications, control, and appliance systems

*Embedded Linux:* Developed custom embedded Linux solutions for multiple platforms

*Product Engineer:* Designed and implemented product modifications for regulatory compliance

*Skills:* C, C++, Bash, Python, OpenCV, GNU Octave, Matlab, Intel Integrated Performance Primitives, Qt, OllyDbg, IDEPro, audio and video codecs, mpeg, H.264, libx264, ffmpeg, Linux (Ubuntu, Knoppix, PCLinuxOS, OpenWRT), Embedded Linux, Linux Appliances, Windows, cygwin, virtualbox, OpenWRT, OpenVPN, GPS, GSM, GCC (c/c++), autotools, subversion, cvs, git, tcpdump, wireshark, MSVC (Developer Studio chain), mingw, msys, 802.11x wireless protocols, simulation (discrete event, signal processing, communications)

## **SAMPLE PATENTS AND PATENT APPLICATIONS**

US 10413011 Hardhat Speakers\*

US 10373458 Automatic threat detection based on video frame delta information in compressed video streams\*

US 10140710 Automatic key frame detection\*

US 9978393 System and method for automatically removing noise defects from sound recordings\*

US 9842175 Methods and systems for automatic selection of preferred classification and regression trees, with validated ranking

US 9760656 Methods and systems for automatic selection of classification and regression trees having preferred consistency and accuracy

US 9524476 Methods and systems for automatic selection of preferred size classification and regression trees

US 9330127 Methods and systems for automatic selection of classification and regression trees

US 20200005538 Remote Collaboration Methods and Systems\*

US 20190392866 Video Summarization and Collaboration Systems and Methods\*

US 20190383879 Precision Battery Energy Measuring System\*

US 20190377611 Rule Generation and Tasking Resources and Attributes to Objects System and Method\*

US 20190377012 Precision Current Sensing Using Low Cost Sense Resistance\*

US 20190313024 Camera power management by a network hub with artificial intelligence\*

US 20190311201 Battery-powered camera with reduced power consumption based on machine learning and object detection\*

US 20190275510 Catalytic converter restoration systems and methods\*

US 20190164164 Collaborative pattern recognition system\*

US 20180307979 Distributed deep learning using a distributed deep neural network\*

US 20180137415 Predictive analytic methods and systems

WO/2018/089574 Predictive Analytic Methods and Systems

\* Prepared under contract to Ellenoff Grossman & Schole LLP