David Reeder

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github.com/davidreeder

Over 15 years professional experience in software development and Internet protocol design spanning commercial, educational and government operations in the areas of networking, operating systems, security, Internet standards and data mangement.

Data engineering and architecture. IETF contributor (`ietf.org`). Mobile front end and data models. Cryptography implementation and research. Client/server protocol and architecture development.

Current Focus ——————————————————————————————

Data pipeline and cloud architecture. Niche problem solving, custom network protocols, micro-networking, deep services and backend support.

Core Skillset ——————————————————————————————

Python, Java, SQL, C, SuperCollider, UNIX

Mobile Development	:: Swift, Objective-C, iOS frameworks, C/C++
Secondary Languages	:: Scala, PHP, Javascript, Ruby
Operating Systems	:: Linux, BSD/SysV, iOS, macOS, Android, Windows
Cloud / Data Center	:: Docker, Kubernetes, Hadoop/HDFS, Hive, Azure
Databases	:: Vertica, Snowflake, SingleStore
Development Methods	:: REST, CI/CD, Design Patterns, Agile
Staging / Testing	:: Rubix, Jenkins, HockeyApp, Xamarin, Xcode
Source Management	:: Git, Subversion
Cryptography Libraries	:: SSL, BSAFE, HiFn, nCipher, SSH
Sound Libraries / Tools	:: Faust, RTcmix, Max/MSP/Jitter, SoftVNS, Finale, Sibelius, ProTools, Reaper, Core Audio
Affiliations	:: ACM, IETF, WWDC, ICMA
Leadership	:: NYCEMF Executive Committee, NYC SuperCollider

Coding Experience ——————————————————————————————

Data Engineering * Digital Advertising * Cloud/Data Center Architecture * RESTful Protocols * Mobility and Mobile Apps * Networking and Routing (LAN, WAN, mesh, ad hoc) * Messaging * Security * IETF standards development and implementation (IPSec, Mobile-IP, EAP, SNMPv3, key management) * Client/Server * Web Services * Socket Interface and Kernel Extensions * System Architecture and Feature Design

- Authored Internet protocols incorporated into existing Internet.

- Implemented cryptographic transforms in Net-SNMP (`www.net-snmp.org`), deployed on 100s of thousands of hosts worldwide.

- Mobile apps include: AppNexusSDKApp - MusicPal - Hook'd - Hook'd for Messenger - Lua Technologies - No Dominion - SayIt! - ShopKeepPOS - The Animal Alphabet Singers. Additional apps via HockeyApp.

PROFESSIONAL EXPERIENCE

Xandr / Warner Media	Data Engineer	August 2020 to present

Focus: Data pipeline platform and scalable architecture for advertising exchange.

Engineer performant data solutions that facilitate analysis across advertising lifecycle including bidding and spend optimization, delivery and management of creatives, ad placement, audience/identity solutions and prediction, responsive self-serve client-facing dashboard, definition of business logic, billing and metrics. Daily raw ingress over 200TB. Stakeholders include external clients, senior leadership, data science, analytics, internal product development.

Operational experience includes: Develop and improve apps to display campaign and line-item performance; application deployment, configuration, resource management in datacenter and cloud; integrate heterogeneous SQL environments; negotiate and implement shared solutions for multiple stakeholders with diverse or conflicting data-view and business requirements.

Familiar with Data Science practice including Python libraries (NumPy, Pandas), principles of machine learning, data development lifecycle.

AT&T Xandr (previously AppNexus)	iOS Engineer	August 2016 to July 2020

Focus: Open source SDK enabling app developers to monetize via AppNexus real-time bidding engine and third-party mediation.

Experience includes: Instream and outstream video, VPAID, MRAID; standard mobile and web ad display formats; optimize ad load and display strategies; negotiate new features with clients based upon their use case requirements.

MuseAmi	iOS Engineer	December 2014 to August 2015

Focus: Design, development of app architecture and UI/UX to support optical music recognition (OMR) via custom machine learning (ML) engine.

Experience: Core Audio, Core Data, custom view management, deep linking, machine learning, music engraving systems, music licensing security, cloud support, distributed resource sharing, comparative analytics via Elastic, Logstash and Kibana.

Mobile Sound	Software Engineer, Sound Design	November 2010 to present

Focus: Research, design and development of audio/video solutions for mobile applications and interactive media art.

Projects: Data sonification * Brain-Computer Interface (BCI) for user controlled music * Extention of Open Sound Control (OSC) standard * Adapt Network Time Protocol (NTP) to synchronize geographically distributed musical performance * Custom DSP noise cancellation via iOS Core Audio * Zero-configuration, mobile mesh network as dynamic delivery platform for interactive multi-media * Wappen Field 12-channel immersive sculpture installation with programmatic audio diffusion of manipulated voice * Live sound via custom network protocol * Interactive oral history installation * Configurable gestural control interface for dancers * Coordinate congregation of walking choristers from initial dispersion (over one mile: out-of-range for mutual hearing) to performance stage via mobile phone signals

New York City   Assistant Director, Executive
Electro-acoustic Music Festival   Committee, Installation Czar   June 2013 to present

Focus: Annually present over 200 international composers, lecturers and installation artists in multiple theaters, including 16-channel sound. Average 30 concerts over one week including live instrumental and electronic performance, tape, video and spatialized sound. (NYCEMF.org)

Roles: Assistant director * Installation curation and production * Concert engineer * Concert design and production * Technical consultant * Advisor to online production * Publicity * Diplomat * Judge * Janitor * Stagehand * Administrator * Catering * Composer * Performer

Internet Engineering Task Force   Software Engineer, Protocol Architect, Network Security

Focus: Design, implementation and refactor of Internet protocols, packet routing and enhanced security requirements.

Internet Engineering Task Force (IETF.org) contributor to Mobile-IP, EAP and SNMPv3. Additional standards development experience with IP Security (IPSec), key management (ISAKMP), DNS Security (DNSSEC), Point-to-Point Protocol (PPP), PPPoE, Layer Two Tunneling Protocol (L2TP) and Authentication, Authorization, Accounting (AAA). Demonstrate client/server interoperability across multiple implementations.

Sponsoring companies: DARPA, Trusted Information Systems (TIS Labs), McAfee, Network Associates (NAI Labs), Redback, Flarion.

PREVIOUS EXPERIENCE

Mobile App Development ————————————————————————————————————

- AppNexus (acquired by AT&T)
- Aurnhammer
- Huffington Post
- Lua Technologies (acquired by Life Biosciences)

Backend Development ————————————————————————————————————

- Aventail (acquired by SonicWall)
- City University of New York (CUNY), Emerging Media Program
- Columbia College Chicago
- DARPA research: secure mobile routing across unsecured networks
- Flarion Technologies (acquired by Qualcomm)
- Internet Engineering Task Force (IETF): EAP, Mobile-IP, SNMPv3
- Redback Networks (acquired by Ericsson)
- Sensorstar
- The Technical Commmittee
- Trusted Information Systems (acquired by McAfee)

Technologies ──

Analytics * Anti-trust legislation enforcement * API design * Concurrency * Cryptographic solutions for existing Internet protocols * Data pipeline * Database design * Dependency management * Cloud architecture * FIPS security and standards * Gesture analysis * IP Telephony (VOIP) * Internet protocols including AAA, EAP, IPSec, ISAKMP, L2TP, MobileIP, PPP, PPPoE * Message queuing systems * Develop pedagogy tools for classroom instruction * Preserving legacy software and hardware context * Real-time video and audio performance * Robotics * SNMP MIB definition and implementation * UNIX and custom system maintenance * Virtual private networks (VPN) and Internet tunnelling * Wireless systems and routing

Roles ──

Classroom instruction * Curate cross-team technology education and leadership development * Customer escalations * Director * Interactive installation creation, production, management * Internet standards author * Interoperability testing * Mentoring * Music composition for dance and chamber ensemble * Music conductor, producer * Project management * Software Engineer * Team lead

Additional Skills ──

Anthropology, linguistics * Diversity, Equity, Inclusion (DEI) * Classical and electronic composition and performance * Conducting * Audio engineering live performance * Micing/mixing * Post-productdion * Music engraving, transcription * Sound design, editing, production * Spanish, German

- Music works and installations presented in US, Europe and Canada.
- Workshops in New York on SuperCollider and sound design.

EDUCATION

Portland State University. Bachelor's of Computer Science.
     Internship at Intel Super Computing Division (SSD).
Reed College. Language, anthropology, philosophy.

New School. Audio Engineering Certificate.
Brooklyn College. Performance and Interactive and Media Arts.
Manhattan School of Music. Private study.
Nadia Boulanger pedagogy, European-American Music Alliance (EAMA).

PUBLIC PRESENTATION

Lecture presentation or performance as developer, composer, performer, curator, installation artist or electronic musician at venues in US, Europe and Canada, including:

Abrons Arts Center * Art Prize * Beall Center for Art + Technology * Bosi Contemporary Gallery * Brooklyn College International Electroacoustic Music Festival * Bushwick Open Studios * Center for New Music * Creative Tech Week, NYC * Darmstadt Internationale Ferienkurse fuer Neue Musik * Eyebeam * Galapagos * Greenwich Village Singers * Harvestworks * International Computer Music Conference (ICMC) * Leaders in Software and Art (LISA) * Make Music New York (MMNY) * Morlan Gallery * National Sawdust * New Media Gallery * NYC SuperCollider * New York Foundation for the Arts (NYFA) * NYU Graduate Center * New York City Electro-acoustic Music Festival (NYCEMF) * Oregon Bach Festival * Queens Art Express * Reed College * San Francisco Computer Music Meetup * ShapeShifter Lab * Transylvania University * Urban Institute for Contemporary Arts (UICA) * 60x60

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COMMUNITY SERVICE

- League of Women Voters, New York
- New York City Electro-acoustic Music Festival
- AppNexus Impact

PUBLICATIONS

Mobile Phones as Ubiquitous Instruments: Towards Standardizing Performance Data on the Network
Nathan Bowen, David Reeder.
International Computer Music Conference (ICMC).

`http://web.cecs.pdx.edu/dreeder/pub/ubinetstan.pdf`

Extension to the User-Based Security Model (USM) to Support Triple-DES EDE in "Outside" CBC Mode
David Reeder, Olafur Gudmundsson.
SNMPv3 Working Group, Internet-Draft.

`http://www.snmp.com/eso/draft-reeder-snmpv3-usm-3desede-00.txt`

Internet Key Management and Distribution: Architecture and Toolkit Report
O. Gudmundsson, B. Wellington, D. Reeder, M. Badger, R. Mundy.
NAI Labs Advanced Security Research Journal.

`http://web.cecs.pdx.edu/dreeder/pub/NAILabs-KMT.pdf`