

# JORDAN HOCHENBAUM Ph.D

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## About

Experienced leader with a demonstrated history of building B2B/B2C products and services at scale. Goal-oriented polyglot able to speak the language of both engineering and product/design, with extensive practical experience leading engineering and product development in alignment with strategic initiatives to drive bottom and top-line growth. Passionate about product development, team building, management, and planning, with a focus on Engineering (machine learning/AI + application development) cloud infrastructure, agile development, and design thinking.

10+ years of experience in applied machine learning and artificial intelligence, implementing novel algorithms from the ground up as a researcher and data scientist, and helping bring dozens of products to market as Chief Technology Officer, Chief Operating Officer, Chief Creative Officer, VP Engineering, and Executive Vice President.

## Entrepreneurship & Professional Development

### **Nirveda Cognition Inc** / Chief Technology Officer (2017 - October 2020)

Developed enterprise Document Intelligence Platform powering multiple products serving customers in finance, legal, real estate, and more. Brought 3 products to market on top of the platform in under 1 year. Responsibilities: Plan/execute all aspects of the company's technical vision and strategy; Lead engineering and product development across Web Engineering (application development, Infra/DevOps), and Data Science / machine learning teams; Establish engineering policies, objectives, streamline internal operations, and procedures; Establish and put into practice strict data protection and privacy policies and procedures; Serve on executive team with other officers to drive a cohesive business development effort; Lead the development and adoption of new technologies that yield competitive advantage and increase operational efficiencies; Principal inventor in patent applications and IP generation for the company.

### **Kadenze, Inc** / Strategic Advisor, Formerly CTO, VP Engineering, Co-founder (2013 - current)

Ideation and execution of strategic initiatives resulting in two SaaS products with high penetration rate; (1) Award-winning AI-powered B2B Learning Management System adopted by world class customers across multiple verticals from K-12, higher education, to corporate training; (2) B2C online learning platform bringing together 40 of the world's premier institutions from the US, Europe, and Asia. Customers and partners include top-tier institutions and brands such as Stanford, Princeton, University College London, Adobe, Autodesk, Unity 3D, to name a few. Lead engineering and worked with R&D to develop more than 100 machine learning/AI based automatic grading and feedback tools for media-rich assignments (image, video, audio, documents). Worked closely with key executive team to ensure strategic alignment across departments, define and execute patent strategy, adapt business model and product to market, and open up new opportunities and verticals. Built, managed, and scaled multiple teams starting with 4 originating co-founders to 50+ employees. Point person/leader in all areas of product from R&D strategy through to design, and engineering. Played key leadership role in adapting sales and marketing strategy.

### **Twitter Inc.** / Data Scientist & Researcher (2013)

Developed machine learning and statistical models for real-time anomaly detection in the cloud. Algorithms deployed in production by various stakeholders throughout the organization to monitor tens of thousands of metrics spanning low-level system metrics (CPU, memory, utilization, etc), to user behavior from millions of active users per month. Applications ranging from automatic scaling of infrastructure based on the learned utilization of a specific service (thus reducing significant overhead and saving thousands), automatically detecting SPAM accounts and abuse, patterns in user behavior, & more. Algorithm open-sourced to attract top talent, and has now been used and/or referenced as a benchmark by industry leaders like BNP Paribas, Databricks, Deloitte, Google, Netflix, and Yahoo, to name a few.

**Nokia Research Center Hollywood** / Mobile Experience (December 2009 - March 2010)

Real-time augmented reality (AR) for interactive location-based media experiences. Developed large-scale multitouch interface to interact with companion AR mobile app experience utilizing computer vision, real-time machine learning based pattern recognition for immersive narrative AR experiences.

**California Institute of the Arts** (October 2011 - current) / Professor

Professor in machine learning, music signal processing / DSP, and software engineering. Current course topics include creative coding and machine learning with Python, advanced software architecture and signal processing in C++, and digital audio/music production.

### Education

**Victoria University**, Wellington, New Zealand (2013)

Doctor of Philosophy (PhD) combining computer engineering, electrical engineering (multimodal sensor systems), data science (machine learning), and music. Research looked at the affordances of applying multimodal signal processing and machine learning to music analysis. Dissertation: "*L'Arte Di Interazione Musicale: New Musical Possibilities through Multimodal Techniques*".

**California Institute of the Arts**, Valencia CA (2006-2009)

BFA, Interdisciplinary Studies

### Awards and Recognition

Recipient of the (1) PGSA Research Excellence Award; (2) merit based Victoria PhD Scholarship; (3) merit based Victoria PhD Doctoral Completion Award; (4) Leonardo Fellow; (5) Aspen Ideas Scholar / Fellow.

### Publications

Over the past 15 years has published dozens of technical papers in preeminent internationally peer-reviewed publications (conference proceedings, journals) and seminars spanning the fields of machine learning, cloud computing, human-computer interaction, engineering, and music (IEEE, ACM, USENIX, etc). Sample of publications:

Hochenbaum, Jordan, Owen S. Vallis, and Arun Kejariwal. "Automatic anomaly detection in the cloud via statistical learning." arXiv preprint arXiv:1704.07706 (2017).

Vallis, Owen, Jordan Hochenbaum, and Arun Kejariwal. "A novel technique for long-term anomaly detection in the cloud." In 6th USENIX Workshop on Hot Topics in Cloud Computing (HotCloud 14). 2014.

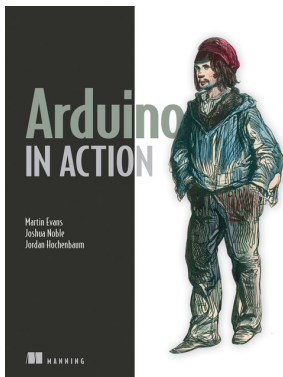
Honigman, Colin, Jordan Hochenbaum, and Ajay Kapur. "Techniques in Swept Frequency Capacitive Sensing: An Open Source Approach." In NIME, ACM pp. 74-77. 2014.

### Books

Co-author of *Arduino in Action* (Manning Publications), one of the best-selling books on prototyping and building IoT / electronics using sensors on the Arduino micro-controller.

### Patents

All patents held are within the fields of machine learning, spanning multimedia as well as user identification and biometric fingerprinting:



**“Document Intelligence System for Automatically Extracting Data from Templateless Document Images.”** Jordan Hochenbaum, Bharat G.S., Rita Anjani, Ajay Kapur. September 2020. In Review.

**“Feature Extraction and Machine Learning for Evaluation of Image-Or Video-Type, Media-Rich Coursework.”** Ajay Kapur, Perry Raymond Cook, Jordan Hochenbaum, Colin Bennett Honigman, Owen Skipper Vallis, Chad A. Wagner, Eric Christopher Heep , October 17, 2017. USA Patent Number: US20150066820A1

**“Feature Extraction and Machine Learning for Evaluation of Audio-Type, Media-Rich Coursework.”** Ajay Kapur, Perry Raymond Cook, Jordan Hochenbaum, Owen Skipper Vallis, Chad A. Wagner, Eric Christopher Heep.” July 31, 2013. USA Patent Number: US20150039541A1

**“Self Organizing Maps (SOMS) for Organizing, Categorizing, Browsing and/or Grading Large Collections of Assignments for Massive Online Education Systems.”** Jordan N. Hochenbaum, Ajay Kapur, Owen S. Vallis, Perry R. Cook, Colin Honigman, Chad Wagner. October 25, 2013. USA Patent Number: US20150147728A1

**“User Identity Authentication Techniques for On-Line Content or Access.”** Perry Raymond Cook, Ajay Kapur, Owen S. Vallis, Jordan N. Hochenbaum. October 9, 2018. USA Patent Number: US20150379253A1

**“Multimedia educational content delivery with identity authentication and related compensation model.”** Perry Raymond Cook, Ajay Kapur, Owen S. Vallis, Jordan N. Hochenbaum. March 14, 2014. USA Patent Number: US20150262496A1