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About Me

I'm a computer scientist working at Moonfire Ventures. Moonfire is an early-stage venture capital firm which aims to be the best performing early-stage firm in Europe by using data, technology, and machine learning to drive the entire investment lifecycle. Previously, I was the Co-Founder and CTO of Kolide, an analytics startup, and I've also worked in engineering and machine learning leadership roles at Facebook, Etsy, and Workday.

Professional Experience

Moonfire

since 2020 **Managing Partner**, Remote, UK

At Moonfire, I'm responsible for the definition and delivery of the firm's AI-focused technology strategy. The majority of my time is spent architecting and engineering our software, sourcing and processing massive datasets, and developing machine learning solutions which allow Moonfire to leverage this data to make successful investments. I am also deeply involved with the fundraising process through which I have helped Moonfire raise over 175 million dollars across three venture funds.

UK Government Office for Science

2022–2023 **Artificial Intelligence Advisor**, London, UK

The Technology and Science Insights (TSI) unit at the Government Office for Science produce Rapid Technology Assessments (RTA) for emerging fields of science and technology. I helped with the Artificial Intelligence Rapid Technology Assessment throughout 2022 and 2023. During that time, I worked with the team to map and taxonomize the modern AI & ML landscape and participated in the final presentation of the RTA to over 150 people across the UK government.

Workday

2020 **Machine Learning Architect**, London, UK

After helping to build, launch, and scale a distributed embedding-based search and recommendation system, I was promoted to Architect (Workday's Director-level IC role) and my responsibilities shifted to emphasize explicit focus on establishing and unifying the architecture and strategy for wider data science and engineering initiatives in an effort to optimize for the velocity and rigor of methodological inquiry as well as the long-term scalability and stability of the platform across all research and engineering groups.

2019–2020 **Principal Machine Learning Engineer**, Boulder, CO

At Workday, I joined the Machine Learning organization to lead the architecture, implementation, and productionalization of a distributed embedding-based search and multi-document matching engine. I led the design and delivery of several different parts of the stack which we successfully launched and scaled in support of several generally available Workday products with the Recruiting, Learning, and Talent product organizations.

Mila

2019–2020 **Machine Learning Research Engineer**, *Mila - Quebec AI Institute*, Montréal, QC

At Mila, I worked on software and infrastructure engineering objectives for a project which aimed to raise awareness and conceptual understanding of climate change by depicting accurate and personalized outcomes of climate change using cutting-edge techniques from artificial intelligence and climate modeling.

Kolide

2016–2019 **Co-Founder & CTO**, Boulder, CO

As the Co-Founder and CTO of a small venture-backed infrastructure analytics startup, I built and led a high-performing, fully-remote engineering organization with engineers in every US timezone. I also acted as the lead architect and developer for almost all of our backend, infrastructure, and operating system software. As Co-Founder, my role also allowed me to spend time as a frequent author of blog articles, part-time salesman, periodic financial negotiator, persistent pedagogue, etc.

Facebook

2015–2016 **Engineering Manager**, Menlo Park, CA

After working as an individual contributor at Facebook, I became the Engineering Manager of the intrusion detection infrastructure team. In addition to learning a lot about the technical subject matter of intrusion detection and large-scale data analytics, I learned a lot about how to be an effective people leader for a team of extremely high-performing individuals. Facebook provides a lot of great support to individual contributors that transition to engineering management and I took advantage of these resources as much as possible.

2014–2015 **Software Engineer**, Menlo Park, CA

I joined the team at Facebook to work on improving host intrusion detection capabilities, specifically on macOS and Linux which were falling behind Windows tools from vendors. To accomplish this across all of Facebook's environments, I created the osquery project and widely deployed it throughout corp and production with enormous help from an amazing team. Osquery is the most starred security project on all of GitHub!

Etsy

2013–2014 **Senior Software Engineer**, New York, NY

After helping to establish several aspects of Etsy's infrastructure and application security practices, I was promoted to Senior Software Engineer where I was the youngest Senior Engineer in the history of the company as well as the only engineer to have ever been an active participant in both the Engineering and Operations on-call rotations. Being passionate about data infrastructure and data analytics, I also became the designated security lead for data infrastructure and I voluntarily maintained some analytics infrastructure for our team of Data Analysts.

2012–2013 **Software Engineer**, New York, NY

While at Etsy, I was a Software Engineer on the Security team working on a wide range of engineering efforts to ensure the security of Etsy's infrastructure and application. One of the things that I worked on was a custom host intrusion detection system which I deployed and managed across Etsy's corporate infrastructure where I was fortunate enough to participate in several red team exercises designed to test it's effectiveness. This effort provided a lot of experience and domain expertise that guided a lot of design decisions in osquery.

iSEC Partners

2011–2012 **Security Engineer**, New York, NY

At iSEC Partners, I was a penetration tester and security researcher, specializing in infrastructure security, mobile operating system security, and mobile application security. I did research on mobile device exploitation, PHP application security, and mobile application security.

Gotham Digital Science

2011 **Security Engineer**, New York, NY

I did security assessments for GDS while also a Computer Science student at Stevens Institute of Technology. I participated in infrastructure and application assessments for a variety of large financial and technology companies.

Open-Source Contributions

2021-2023 **Software Engineer**, *Cogent Crypto*

I worked with Ben Hawkins, a visionary technologist and a great friend, on engineering objectives related to Solana validator operations and staking primitives within the Solana ecosystem. Together, we built the first validator profit sharing mechanism via a novel NFT staking dapp. In 2023, Ben became the Head of Staking Ecosystem at the Solana Foundation which led to a natural transition away from the project for me.

2018–2019 **Release Team Member**, *Kubernetes*, SIG Release

During my time working with SIG Release, I was an active member of the Kubernetes Release Team for 4 consecutive releases. Much of my work during my first few releases consisted of systematically re-architecting the release notes generation and distribution process from an extremely manual process to a software-powered process. During my last release, I co-lead the release alongside Aaron Crickenberger and Ben Elder.

2018–2019 **Multitenancy Working Group Member**, *Kubernetes*, WG Multitenancy

Passionate about multi-tenant deployment environments, I also contributed to the Multi-tenancy Working Group during it's earliest days. I was an active participant in early architecture discussions and I contributed to early software development prototypes of a Kubernetes Custom Resource and Operator for managing multi-tenant workloads.

2014–2016 **Project Lead**, *Osquery*

2014 **Project Founder**, *Osquery*

I created and open-souced osquery while working at Facebook in 2014. Osquery has since become a foundational tool in the information security and monitoring industries. Osquery is actively used by thousands of companies all over the world to detect and respond to security threats, data breaches, and other critical incidents.

Osquery is an operating system instrumentation framework for Windows, macOS, Linux, and FreeBSD. The tools make low-level operating system analytics and monitoring both performant and intuitive. Osquery exposes an operating system as a high-performance relational database. This allows you to write SQL-based queries to explore operating system data. With osquery, SQL tables represent abstract concepts such as running processes, loaded kernel modules, open network connections, browser plugins, hardware events, and file hashes.

I don't participate in osquery development anymore but I'm proud of the community that has grown around the project and I'm proud of the impact it has had on the security industry. I'm personally a big supporter of (and Moonfire is a proud investor in) Fleet Device Management which is co-founded by my friend and the co-creator of osquery, Zach Wasserman.

Fundraising

$90,000,000 **Moonfire Fund II**, *Venture Capital Fund*, 2022

$25,000,000 **Moonfire Opportunities Fund I**, *Venture Capital Fund*, 2022

$60,000,000 **Moonfire Fund I**, *Venture Capital Fund*, 2020

$8,000,000 **Kolide Series A**, *Venture Capital Round led by Matrix Partners*, 2018

$1,600,000 **Kolide Series Seed**, *Venture Capital Round led by Accomplice*, 2016

Teaching Experience

2023 **Guest Lecturer**, *ETH Zurich*, Technology Investing (263-5053-00L)

2023 **Guest Lecturer**, *LBS (London Business School)*, E518: Digital Investing

2022 **Guest Lecturer**, *UCL (University College London)*, CEGE0115: Portfolio Management and Asset Allocation

2019 **Curriculum Developer & Instructor**, *STEM Camp: Introduction to Machine Learning*

2010–2011 **Curriculum Developer & Instructor**, *Stevens Cyber Defense Team*

Institutional Service

2014 **Selection Committee Member**, *Facebook Internet Defense Prize ($50,000)*

Technical Skills

AI & Machine Learning

Languages Python

Libraries PyTorch, NumPy, LangChain, OpenAI, Transformers, Jupyter, Pandas, SymPy

Backend & Infrastructure

Languages Rust, Go, C++, Bash

Infrastructure Kubernetes, Docker, gRPC, Etcd, Bazel, Google Cloud, AWS, libvirt

Blockchain

L1s Solana, Ethereum, Tezos

Languages Rust, Solidity

Focus Areas Validator Infrastructure, MEV, Stake Account Management

Frontend & User Interfaces

Languages TypeScript, JavaScript, CSS, Swift

Libraries React, Next.js, Tailwind CSS, shadcn, GraphQL, SwiftUI, React Native

Talks

[1] **Mike Arpaia**
Using a Kubernetes Operator to Manage Tenancy in a B2B SaaS App
KubeCon North America 2018, Seattle, WA

[2] **Mike Arpaia** and Zach Wasserman
Instrumenting Dynamic Environments with Source Control, Peer Review, and Decentralized Intelligence Distribution
QueryCon 2018, San Francisco, CA

[3] **Mike Arpaia**
Starting Growing and Scaling Your Host Intrusion Detection Efforts
LocoMocoSec 2018, Kauai, HI

[4] **Mike Arpaia**
Building Successful Open Source Security Software
CSAW THREADS 2016, Brooklyn, NY

[5] **Mike Arpaia** and Theodore Reed
OS X Operating System Security at Scale
PSU MacAdmins 2015, University Park, PA

[6] **Mike Arpaia**
Host Intrusion Detection With Osquery
Security @ Scale 2014, Menlo Park, CA

[7] **Mike Arpaia** and Kyle Barry
Data Driven Web Application Security
Black Hat USA 2013, Las Vegas, NV

[8] **Mike Arpaia**
iOS and Android Security Mechanisms and Exploit Mitigations
MDevCon 2013, Amsterdam, NL

[9] Dan Guido and **Mike Arpaia**
Mobile Exploit Intelligence Project
Black Hat Europe 2012, Amsterdam, NL

[10] **Mike Arpaia** and Theodore Reed
Creating a Successful University Cyber Defense Organization
DEFCON 2011, Las Vegas, NV

Papers

[1] Francesco Farina, **Michael Arpaia**, Harpal Khing, and Jonas Vetterle
Venture Capital Portfolio Construction and the Main Factors Impacting the Optimal Strategy
arXiv, 2023

[2] Nicholas Capalbo, Theodore Reed, and **Michael Arpaia**
RTFn: Enabling Cybersecurity Education Through a Mobile Capture the Flag Client
The International Conference on Security and Management, 2011