Michael Barnathan, PhD

732-328-8268   michael@barnathan.net

Selected Interests:	Tech Leadership and Recruiting, Agents, RAG, Multimodal Recommendation, Computer Vision, World-Class Software Development, STEM Education, Contextual Mobile Apps, Internet of Things, Computer-Assisted Diagnosis.
Press Coverage:	TechCrunch (x2), Wired, Huffington Post, EdSurge, Android Police, HackADay

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Technical Knowledge

Programming Languages:	Python, Java, Matlab, TypeScript, JavaScript, Groovy, C++, Perl, PHP, C#
Web Frameworks:	HTML 5 / CSS 3, Ionic, Electron, jQuery, Firebase, Angular 2+ and 1.x, React
Agents and LLMs:	MCP, LlamaIndex, CrewAI (contributor), Agentops (contributor), Autogen, LangChain, LangGraph, Chroma, Weaviate, Pinecone, CLIP, Diffusion Models
Data and ML:	dbt, Fivetran, Snowflake, Databricks, Spark, Tecton, Beam, Airflow, MLFlow, recommenders, CNNs, Transformers, SVD, graph mining, computer vision.
Cloud Platforms:	AWS, Google Cloud Platform, Digital Ocean, Firebase, Heroku.
Database Systems:	Firebase, Supabase, Snowflake, MySQL, PostgreSQL, SQLite, Druid, BigQuery, Hive.
Mobile and Desktop:	Android, Ionic, Electron, Linux (Gentoo, Arch, Ubuntu), Arduino, Raspberry Pi.
IoT and Home Media:	SmartThings, Lutron Clear Connect, ZWave, Zigbee, Wink, DLNA / Airplay, RTSP.
Biotechnology:	Alignment (BLAST and FASTA), phylogenetics, some synthetic biology, genetic engineering, electrophoresis, PCR, neuroradiology, musculoskeletal radiology.

Employment and Entrepreneurship

Nov 2024 - Present   **VP of Engineering, Robin AI**

- Sold C-suite on a "chat with your contracts" agent strategy using RAG, Temporal, LlamaIndex, and pgvector.
- Directly closed deals: Consilio (multi-7 figure ARR), IBM, two Mag 7s, and a top legal data provider.
- Built our entire NYC engineering team in a month while operating a large team of London-based engineers.
- Changes resulted in record high engineering velocity: a 141% increase in average story points per week.
- Ahead of schedule deliveries on a complete v2 of the Robin AI platform, in-platform reports, unlimited context windows, and support for multi-LLM agent routing.

May 2021 – May 2024   **Director of Applied ML, Cash App (Block)**   **Managed 2 Dirs + 11 EMs, 150 MLEs**

- Grew Cash Machine Learning Engineering from 30 people to a globally distributed team of over 150.
- Expanded ML use cases at Cash App from 3 to 12 (including Cash App and Afterpay's risk teams).
- Authored Cash App's ML platform strategy, creating and staffing a 50+ person ML Infrastructure organization to drive this forward. Launched model inference, feature storage, vector embedding, tooling, explainability, and data engineering systems powering all ML at Cash in under a year.
- Built an outstanding reputation for Cash MLE, turning it into an internal and external talent magnet.
- Created MLE JDs, career ladder, and roadmap; ran hiring, comp, and promo. Helped leads develop new leads. Directly hired 5 EMs, a TPM, and >50 MLEs. Mentored 4 IC->EM and 2 EM->Director transitions.

April 2020 – May 2021   **Engineering Manager (Newsfeed), Meta**   **Managed 15 engineers**
Led recommendation infrastructure for Facebook's newsfeed; collaborated with every team that uses the feed.

- **Drove integration of Facebook and Instagram's backend feed recommendation stacks and the inclusion of Instagram Reels in the Facebook Newsfeed.**
- Balanced dozens of XFN partnerships with overall platform strategy. Created frameworks for use case prioritization, including white glove and self-service tiered support.
- Worked with senior engineers to design a low latency lambda architecture for ingesting features in both online and offline recommendation flows.

Dec. 2018 – April 2020   **TLM: ML Sci, ML Eng, Anticheat - Niantic**   **(Niantic makes Pokemon GO)**
Created and led Niantic's Machine Learning organization. Architected Niantic's GDPR-compliant ML pipeline for petabyte-scale training using Google Cloud. Launched our first complete ML pipeline in two quarters, then given leadership of Anticheat. Platformized cheat detection within Pokemon GO to drive significant latency and accuracy improvements (catching >5m cheaters), exploiting adjacencies between the teams to develop shared infrastructure. Drove a 35% increase in raid pass revenue and an 8 figure ARR lift.

Dec. 2016 – Oct. 2018   **CTO, ViewX**   *Acquired by BuzzFeed*
Co-founded and built a text-to-video recommendation engine for news organizations in 2016. Hands-on leadership of a small but mighty tech team. My two-tower architecture scaled to the production load of Vice.com, where we achieved lift of up to 80% in feed recommendation tasks.

- Recruited our team: Scouted and hired the future Head of Engineering at Supabase.
- Closed partnerships with BuzzFeed (esp. their Tasty channel), Vice.com, Time Meredith, and Vocativ.
- Created a multimodal recommendation engine using embedding based ("two tower") search and a custom vector DB using annoy before these techniques were even widely used for a single modality.
- Built an industry-leading OCR pipeline: 96% OCR accuracy extracting recipes from Tasty vs 67% in Tesseract.

April 2015 – Nov. 2016   **CEO, The Mountaintop Program**   **Coordinated 75 mentors**
Mountaintop turns K-12 schools into The Accelerator for Everyone by mentoring students towards their callings. With the help of 3 co-founders and 15 coordinators from NYU, I recruited and coordinated the activities of 75 mentors over the course of a semester to incubate the projects of about 300 students across 2 under-served NYC schools. The program culminated in a demo day which literally altered the course of many students' lives.

August 2014 – Sep. 2015   **Director of Engineering, Amplify**   **Recruited + Managed 21 engineers**
Led software engineering on v2 of the Amplify Tablet, a highly customized Android device for K-12 classrooms. Turned the project around and helped Amplify recapture a $16.8 million contract with Guilford County Schools.

Oct. 2013 – Dec. 2013   **Head of Mobile, 8coupons**
Jan. 2013 – Oct. 2013   **Founder and CEO, Clipless**   *Acquired by 8coupons*
Founded Clipless ("Honey for the physical world") a contextual Android app which collects deals from over 2,000 sources and delivers them on-location and at the point of action. Led the company to rocketship traction and went from nothing to a 7-figure acquisition in only 8 months. Scaled effortlessly through two appearances on the front page of TechCrunch. Partnerships included Barnes and Noble and Rakuten.

June 2012 – Sep. 2012   **Senior Software Engineer**
Sep. 2010 – May 2012   **Software Engineer**
                                   Google
I worked across three projects: the Bazel build system and adjacent test, reporting, and deployment tools. I led a major initiative to provide an end-to-end authenticated build, test, and release pipeline which entailed direct

leadership across these teams. I wrote much of the parallel graph traversal, query, and testing logic prior to the release, as well as many internal components. If you've used Bazel, you've run my code. **Extra peer/spot bonuses:**

- Nov. 2010: Fixed blocking issues on a release.
- Feb. 2011: For parallelizing Bazel's core action graph traversal to achieve <1s builds.
- Jul. 2011: Helped Google's CI team meet a major quarterly objective.
- Sep. 2011: Built realtime build reporting; sped two teams up by 5x.
- Dec. 2011: Led a major three team effort to successfully land e2e signed builds. (**Spot bonus**)
- Feb. 2012: Independently wrote a highly parallel release tool. Release time went from 5h to 5m.
- Mar. 2012: When that tool saved our release!
- Mar. 2012: For a well-received public tech talk.
- Aug. 2012: Found and fixed a subtle Google-wide classloader deadlock.

Sep. 1997 – Oct. 2008   **Founder, Metasquarer**

Developed, hosted, and supported Metasquarer, an online game. Built a community of over 10,000 people at the age of 12. Created an O(n) algorithm to find squares within a grid and an alpha-beta AI opponent from intuition years prior to learning the theory. Used the REST paradigm two years before it was officially invented.

Education

Temple University
Philadelphia, PA

Aug. 2006 – May 2010	**Ph. D.** in Computer and Information Sciences (ML).	**GPA: 3.92 / 4.00**
Aug. 2006 – Aug. 2007	**Master of Science** in Computer and Information Sciences.	**GPA: 3.89 / 4.00**

Thesis Topics:	Dissertation: *Mining Complex High-Order Datasets* (tensors in ML). April 23, 2010.
	Master's Project: *Medical Image Data Mining System*, published at ISBI 2008.
Fellowships:	Temple University Fellowship, CST Dean's Scholarship.
Honor Societies:	Golden Key International Honor Society.

Monmouth University
West Long Branch, NJ

GPA: 3.96 / 4.00
Rank #1

Sep. 2002 – May 2006   **Bachelor of Science** *Summa Cum Laude* in Computer Science, Math minor.

Awards:	**$5,000 Academic Achievement Award for the Highest GPA in the Class of 2006,** Dept. of Computer Science Award (2006), **Dean's List**: All semesters.
Scholarships:	$6,000/year Monmouth University Scholarship, 2x Dr. Harold Jacobs Scholarship.
Honor Societies:	Phi Eta Sigma, Lambda Sigma Tau, Kappa Mu Epsilon, Omicron Delta Kappa.
Other Activities:	President (2005-2006) and Vice President (2004-2005) of the MU ACM.
	Member of the School of Science Student/Alumni Advisory Council (2004-2009).

Other Skills:

- Published expert in neuroradiology (can read MRIs). Fluent English, conversational Spanish, basic Mandarin.
- Proficient as a pianist, composer (music portfolio), and photographer (500px, Behance).
- Electronics inventor and "maker": solar GPS (2010), "working" crystal balls (2010), EEG brain-computer interface (2011), Parkinson's-detecting knee brace (2011), voice-automated home (2012), SmartWink IoT Platform (2015), ESP8266 wifi-enabled window blinds (2016), hidden bookcase door (2017).