Andrew Hu

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Product and platform engineering leader who turns ambiguous research and fragmented systems into adopted production infrastructure. Led a maritime optimization product from research notebook to GA, built manufacturing analytics used by two Indonesian manufacturers, and established Casap's company-wide release workflow. Through Pithecene, develops domain-specific search and analytical systems for maritime, civic, and financial applications, alongside shared data infrastructure and agentic engineering tools.

PITHECENE

Independent Research & Engineering | pithecene.sh

Design and build domain-specific search engines and analytical systems, connecting domain research, product definition, data infrastructure, and engineering.

Panthalassa — Maritime Intelligence. Developing maritime research and route-computation systems that relate vessel movement to environmental conditions and compare route alternatives.

Atlas — Place Intelligence. Designing comparative search across demographic, civic, cultural, economic, and environmental dimensions, with rankings shaped by the priorities of the inquiry.

Futureson — Market Intelligence. Developing market-research and trading infrastructure connecting observations, positions, exposure, and execution.

Bosun — Agentic Engineering. Building repository-grounded agent orchestration with explicit task requirements, implementation constraints, and evidence-based review.

Grove — System Stewardship. Developing tools that connect a system's declared purpose with its dependencies and observed changes, preserving a longitudinal record for its maintainers.

Quarry and Lode — Data Infrastructure. Built reusable extraction and persistence infrastructure spanning script execution, streaming ingestion, object-storage snapshots, and sparse byte ranges.

PROFESSIONAL EXPERIENCE

Casap Technologies

App Platform & Software Delivery Apr 2025 - Present

APP PLATFORM

- Took ownership of App Platform, the shared application infrastructure behind bank and credit-union ledger mutations, chargeback filing, and escalation through pre-arbitration and arbitration.
- Designed a common event framework for domain mutations and asynchronous workflows, standardizing persistence, pub/sub, side effects, scheduling, chaining, and concurrency.
- Expanded App Platform into orchestration and frontend infrastructure.
- Delivered Visa VROL chargeback filing and multi-network data integrations across Go services, DynamoDB, Postgres, OpenSearch, and SQS/SNS.

SOFTWARE DELIVERY & OPERATIONS

- Designed and rolled out Casap's release-management platform, introducing versioned releases and guided promotion across environments. The workflow is used by every engineer.
- Built an interactive release/deploy/rollback CLI with PR/commit selection, GitHub SSO and permission checks, and ECS task-definition-to-release mappings; made rollback a guided selection and redeployment of a known version.
- Introduced Datadog and structured logging with consistent domain, component, subsystem, and business context keys for searchable production diagnosis.

Indas Technologies

Co-founder & CTO | *Manufacturing Analytics* Nov 2024 - Apr 2025

- Turned an existing factory-floor computer-vision operation into a connected manufacturing-analytics platform, defining the path from on-premise workstation collection to authenticated production and defect/anomaly reporting.
- Led product and software architecture and built the end-to-end application: improved the inherited device collector; implemented TCP/UDP ingestion, schemas, authentication, backend/frontend services, dashboards, charts, and operating workflows.
- Delivered the platform for regular use by two Indonesian manufacturers, generating installation fees and recurring subscription revenue; maintained it through April 2025 while the other cofounders handled on-site hardware installation and the original camera/CV operation.

Harta / Husthere

Co-creator | *Collaborative Travel Planning* Aug 2023 - Sep 2024

- Co-created Harta/Husthere from a blank slate through its August 2024 launch, leading full-stack engineering while jointly shaping the product and refining nearly every core interaction with a frontend engineer and product designer.
- Built toward one shared experience for friends and families to plan, book, and share trips together; shipped map-centered itinerary planning with Google Places search, drag-and-drop flights and places, user profiles, and public sharing.
- Built real-time collaboration and an experimental retrieval-augmented LLM itinerary generator, including live presence, field locks, comments, MongoDB change-stream updates, and PostGIS-backed destination search.

Nautilus Labs

Tech Lead, Platform | *Maritime Voyage Optimization* Jun 2021 - Jun 2023

- Led engineering delivery from an inherited research notebook through general availability; owned implementation, reporting, deployment, and production support. Enterprise proof-of-technology rollouts served shipping and energy customers.
- Rewrote the Python simulation engine in Go for substantially faster execution; designed voyage-based simulation abstractions and model-integration interfaces for fuel consumption, ETA, and profit/time charter equivalent (TCE) objectives.
- Integrated predictive models through Lua scripts with data-science partners; built reusable input workflows, full simulation-trace exports, and visual reports covering route aggregates and weather.
- Built and operated NOAA/Copernicus weather ingestion, S3 storage, caching, and spatial/temporal queries; guided an additional engineer on the pipeline rewrite and new data sources.
- Prototyped multiobjective and multidimensional optimization in Python using Platypus; the prototype remained research work, while Jupyter notebooks and interactive visualizations continued to use the production Go services.

Senior Software Engineer | *Maritime Data Platform* Nov 2019 - Jun 2021

- Led the Step Functions-to-SQS/SNS migration and recast client-specific Lambda ingestion into reusable fetch/ingest, parse, transform, and normalize stages, each with a clear responsibility.
- Co-designed configurable ingestion and source-to-canonical mappings with maritime experts, preserving vessel-speed and equipment/fuel semantics across analytics and ML data; existing provider connectors enabled onboarding through configuration and client-specific schemas.
- Led Python implementation of a shared microcomponent framework, moving pipeline jobs from Lambda to ECS microservices; maintained it as stable shared infrastructure.

FlexTrade Systems

Software Engineer | *Institutional Order & Execution Management* Oct 2018 - Nov 2019

- Built order routing, execution lifecycle, algo-wheel workflows, and FIX event workflows in a performance-sensitive C++ broker-neutral institutional trading platform.
- Implemented transaction snapshots, transaction-cost analysis, and real-time market-data consumption for execution-quality analysis across brokers and venues; supported buy-side clients during configuration, demos, and live usage.

EDUCATION

Georgia Institute of Technology

B.S. Computer Science | *Systems & Architecture* Aug 2015 - May 2018

TECHNICAL SKILLS

Languages: Go, C++, TypeScript, Python, Java, Rust
Systems: Event-driven platforms, lifecycle modeling, simulation/optimization, spatiotemporal data, distributed ingestion
Infrastructure: Postgres, DynamoDB, OpenSearch, RabbitMQ, SQS/SNS, ECS, Terraform, Pulumi, containers
AI Engineering: Contract-driven agent workflows, model integration, AI development governance