

## ALAN DARMASAPUTRA

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### WORK EXPERIENCE

#### **Distributed System Engineer @ Actyx AG**

**February 2023 - Present**

- Built type system and VM prototype for a feature in Actyx Query Language.
- Built [machine-runner](#), a replicated-distributed state machine TypeScript library.
- Maintained [Actyx](#), Rust-based local-first distributed event database, streaming, and processing engine.
- Co-wrote paper “Behaviorally Typed State Machines in TypeScript for Heterogeneous Swarms”.  
<https://arxiv.org/abs/2306.09068>

#### **Senior Software Engineer / Technical Lead @**

**January 2018 – February 2023**

#### **AccelByte Inc**

- Led and directed the game build distribution subdivision of the development toolkit department (formerly BlackBox), including a desktop application, a web app, and backend services;
- Build and maintain the game build download, upload, and version delta generation core mechanism;
- Designed a consensus system for horizontally scaling the version delta generators for BlackBox.
- Designed inter-product/inter-process communication system standard for the department e.g. communication between Desktop-to-SDK, Desktop-to-web, Desktop-to-CLI.
- Built and led a customer engineering team from zero to stable; established development processes and inter-team collaboration processes which were taking form due to a new client acquisition and recent organization restructuring; March - October 2020.
- Co-established the initial company-wide strategies and guidelines for development, deployment, and white-label product forking.
- Led the publishing team which was responsible for game and in-game items marketplace; March 2019 - February 2020.
- Acquired, refactored, and standardized an outsourced codebase of the marketplace web; made efficient the development and forking process by moving some testing responsibilities from manual QA to automated tests and compiler-assisted model checking; improved the overall product user experience and performance.
- Built white-label game launcher application from zero to production.

#### **Freelance, Intern, and Educational Projects**

**2015 - 2017**

- Built shop and warehouse inventory systems with Java, PHP, and Laravel.
- Prototyped JavaScript/Canvas game engine and AI system

### TECHNICAL SKILLS

#### **Expertise Highlight:**

System engineering & architecture, TypeScript, Rust

#### **Primary frameworks:**

React, NodeJS, Tauri, Electron, Docker, Tokio

#### **Other languages:**

C, C++, Go, SQL, Java, GraphQL, HTML, CSS, OpenGL, WebGL, HLSL, PHP, Python, Solidity

#### **Other competence:**

Distributed system, Fullstack Engineering, API Design, Microservices, Programming Language Design, Functional Programming, Graph Algorithm, CI/CD, Database Engine Development, Game Engine Development, Shader Programming, Cryptography, Identity, Blockchain, DID, Project Management

## SELECT PROJECTS

### **Professional and proprietary:**

#### **Machine-Runner:**

Programmable distributed state machine on top of replicated events for P2P cooperative sequential tasks. Links: <https://github.com/Actyx/machines>  
<https://dl.acm.org/doi/10.1145/3597926.3604917>, <https://arxiv.org/abs/2306.09068>,

#### **Blackbox Hub:**

A “git-for-game-builds” and testing platform for game developers, including a desktop application, a backend service, and a web application. <https://accelbyte.io/development-toolkit>

#### **Differ Distributed Work Queue:**

A fault-tolerant consensus protocol to infinitely scale a fleet of backend processors for Blackbox Hub that is responsible for generating binary delta encoding between game builds and versions.

#### **Launcher and Player Website for AccelByte Cloud:**

A white-label game launcher and web application for games and in-game items marketplace.

### **Hobby Projects:**

<https://github.com/Kelerchian/machine-tree>

API design experiment for building tree-structured hierarchical and persistent machines.

Inspired by the idea of: “Applying the React model is used for a Backend/Low-level hierarchical machines modeling”

<https://github.com/Kelerchian/vaettir>

TypeScript/JavaScript framework to easily model asynchronous, observable, destroyable, and environment-agnostic [agents](#), with optional first-class integration with React.

## EDUCATION

2013-2017 **Bachelor of Computer Science**; Universitas Kristen Duta Wacana, Yogyakarta. *GPA: 3.84/4.00.*

*Final Essay: Utilizing Driver’s Peripheral Interaction for Parking Space Finder Application User Interface*

## LINKS

Blog <https://valand.dev/>

GitHub <https://github.com/Kelerchian>