Dylan Christopher Kawalec

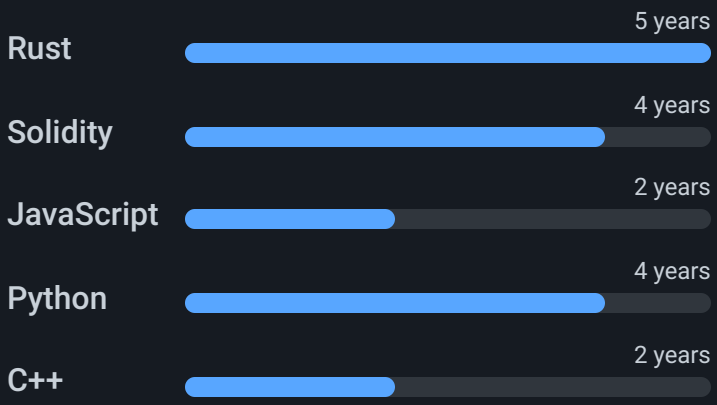
Blockchain Solutions Architect & Principal Software Engineer

dylankawalec@gmail.com | LinkedIn | GitHub

👤 Professional Summary

Accomplished Blockchain Solutions Architect and Principal Software Engineer with a proven track record of delivering cutting-edge blockchain solutions. Extensive expertise in blockchain protocol development, cryptography, and Rust programming. Skilled in architecting and implementing smart contracts, zero-knowledge proof protocols, and decentralized applications. Passionate about driving innovation in the blockchain space and fostering developer communities. Experienced in leading technology initiatives and managing high-performance teams in fast-paced startup environments.

⚙ Technical Skills



- Blockchain: Ethereum, Binance Labs, Harmony, Findora, Polkadot, Aleo, Osmosis
- Cryptography: Trusted Execution Environments, Zero-Knowledge Proofs, Decentralized Relayers
- Web: Tailwind CSS, Cargo Yul, Cargo Tauri Desktop
- Databases: MongoDB, PostgreSQL
- DevRel: System Architecture, Technical Market Campaigns, Speaker, Networking
- Tools: Git, GitHub, Lucid Charts, AI

💻 Notable Projects

Invo SDK - Rocky Road API (v3.3.6)

Developed an architecture that allows games and their players to use a decentralized exchange within the game. This enables interoperability of game tokens across different games. I employed advanced encryption techniques such as AEAD, AES, and RSA, and managed keys using BIP39 and HKDF. The robust backend was built using Actix Web and integrated with various Rust libraries. For instance, Redis was used for efficient data processing and storage, facilitating communication between games and our Invo parachain using Substrate's subxt library.

B3zrk (v0.4.0)

Created an off-chain cryptocurrency exchange system using Rust, leveraging the Blake3 hashing algorithm for efficient and secure data processing. Invented and utilized the POEMS protocol as a zero-knowledge Trusted Execution Environment to verify function signatures securely and correctly. Computed off-chain decentralized exchange transactions as verifiable on-chain exchange executions by leveraging Aleo to produce ZKPs with Poseidon2, BHP256, SHA3, and Keccak256 signature schemes.

Invo AI (v0.2.0)

Developed a blockchain relayer using Rust, designed to act as an AI data analyst for the Invo blockchain. Leveraged the Actix Web framework to build scalable and performant web services. Integrated with external AI APIs using Reqwest for intelligent data processing and analysis. Utilized Serde for efficient data serialization and deserialization, enabling seamless communication between different components of the system.

POEMS Protocol

Invented the POEMS protocol, a zero-knowledge Trusted Execution Environment for verifying function signatures securely and correctly. Received a grant of $50,000 from the Aleo Foundation to architect and develop the protocol. Leveraged the protocol to compute off-chain decentralized exchange transactions as verifiable on-chain exchange executions, enhancing privacy and scalability.

Invo Wallet Interface (v0.1.0)

Built a secure and user-friendly wallet interface using Rust, incorporating advanced cryptographic techniques like HMAC, HKDF, and elliptic curve cryptography. Implemented support for BIP39 mnemonic phrases and utilized the Tiny-Keccak library for efficient hash calculations. Integrated with the Substrate blockchain framework using the sp-core library, enabling seamless interaction with blockchain networks.

AIMBC Trustless Bridge Protocol

Developed the AIMBC trustless bridge protocol using Solidity. This protocol allows secure and efficient token swaps across different EVM (Ethereum Virtual Machine) blockchains. I used the Aleo blockchain to generate zero-knowledge proofs, which verify transactions and ensure trustless execution of Atomic Swaps that function similarly to a bridging protocol. The design was inspired by the HTLC (Hashed TimeLock Contract) protocol. I integrated this with the Ethereum and Binance Smart Chain using the Rust ethers-rs library, which enables seamless interoperability and liquidity provision.

💼 Professional Experience

Invo Technologies Inc. | Chief Technology Officer

May 2023 - Present

- Spearheaded the development of the robust and scalable Invo B3ZRK currency exchange system, handling high transaction volumes and serving a large user base
- Designed an innovative transaction compression proof algorithm, reducing storage requirements by 60% and improving system efficiency
- Developed a dynamic API for managing rates, fees, and restrictions in financial operations, enabling real-time adjustments and optimizations
- Engineered a custom Shamir Proof algorithm for secure off-chain transactions with on-chain proof, enhancing privacy and scalability
- Created a trustless atomic swapping protocol for seamless token swaps across EVM blockchains, facilitating interoperability and liquidity

BNB Chain Labs | Technology Evangelist

Nov 2022 - May 2023

- Conducted developer evangelism through workshops, documentation, and thought leadership, promoting the adoption of Solidity, Web3, and BNB-Blockchain technologies
- Mentored developers during zkBNB workshops and remote technical sessions, empowering them to build secure and scalable blockchain applications
- Served as a judge, mentor, and panelist at the ETHDenver Hackathon, providing guidance and evaluating innovative blockchain projects

Discreet Labs | Business Development Specialist & DevRel

May 2022 - Oct 2022

- Managed strategic partnerships, competitive analysis, and event coordination, driving business growth and market positioning
- Conducted workshops on Zero-Knowledge Proof cryptography, validation, and bridging, educating developers and fostering community engagement
- Provided smart contract testing expertise on the Findora X Smart Chain, ensuring the reliability and security of blockchain applications

Harmony | DevRel

Jun 2021 - May 2022

- Led live developer workshops based on self-created lesson plans, educating developers on blockchain technologies and best practices
- Managed DAO operation teams, including 'Harmony Developer DAO' and 'Bridge Builders DAO', fostering community collaboration and governance
- Assisted in devising developer relation strategies and facilitated developer-project matching, accelerating the growth of the Harmony ecosystem

🎓 Education

Bachelor of Science in Computer Science

Western Governors University, Utah (WGU)

🏆 Awards and Achievements

- Winner, Hacker Deathmatch AOS Arweave Hackathon 2024 at ETHDenver (Solo) - Details
- Winner, Aleo Best Tech Award 2023 -- 'POEMS protocol'
- Winner, ETHAmsterdam 2022 Hackathon with team 'DegenBox'
- Best Partner Award, Kennedy Center American College Theater Festival (KCACTF), 2018

👥 Community Involvement

- Founder, Bridge Builders DAO - Fostering developer relations and organizing local hackathons in South San Francisco
- Seasonal Programming Instructor, Delaware STEAM Academy - Teaching Python and C++ to international students
- Volunteer Mentor - Coding bootcamps and hackathons

🎤 Publications and Presentations

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- "Unleashing the Power of Zero-Knowledge Proofs in Blockchain Development" - Speaker at Multiple Blockchain Conferences -- View Talk
- "Building Scalable and Secure Decentralized zkTEE Applications with Rust" - ZKM 'House of ZK' 2024 -- View Presentation
- "Aleo Developer Enablement Strategy" - Aleo Foundation, for Alex Pruden and Anthony DePrizio -- View Article
- Interacting with Smart Contracts on BNB Chain | Building with BNB Developers -- View Video
- How to bridge to Findora & how to swap on FairySwap -- View Tutorial
- Bread N' Butter Developer podcast -- Listen Podcast
- Invo Technologies Inc. Demonstration -- View Demo

References available upon request