Nadina (Oates) Zweifel

nadinaoates@gmail.com | (616) 589-2729 | Chicago, IL | linkedin.com/in/nadinaoates | nadinaoates.com

FULLSTACK BLOCKCHAIN DEVELOPER

- Continuous learner and versatile full stack web3 developer with an analytical mindset and 3+ years of experience in Crypto, NFTs, DeFi, and Web 3.0.
- Self-motivated project manager with strong communication skills and the ability to independently tackle complex problems and convert them into successful products, as evidenced by 5 web3 production deployments and a stand-alone software release.
- Cross-functional collaborator with strong analytical and problem-solving skills resulting from 6+ years of experience in data analysis and modeling, machine learning and AI, as demonstrated by 3 widely read publications and a research progress award.

CORE COMPETENCIES

Crypto / NFTs / DeFi	Ethers.js / Viem / Wagmi	React / HTML / TailwindCSS	PyTorch / Scikit-Learn
Smart Contracts / Solidity	JavaScript / TypeScript	Version Control (Git)	Cloud Services (AWS)
Foundry / Hardhat / Slither	Node.js / Nest.js / Next.js	Python / C++	Machine Learning

WORK EXPERIENCE

Fullstack Blockchain Developer

EARN Services

May 2021 - Present

- Designed, tested, and developed a total of 11 NFT minting DApps from ideation to production using Next.js/React, Tailwind/CSS, and TypeScript. Also developed and deployed the underlying smart contracts adhering to ERC20, ERC721, and ERC721A standards with various customization such as dynamic fees, whitelists, token fees, and randomization.
- Designed, implemented, and tested a multi-chain Telegram NFT notification bot configurable for multiple NFT collections to send notifications to different Telegram groups. The bot is coded in Python using Quicknode webhooks for blockchain event notification and is deployed on Heroku including a Postgres database to store configuration parameters.
- Developed, tested, and deployed a cross-chain NFT collection that allows minting on Base chain using BEP-20 tokens on Binance chain. The work included the design and development of the ERC721A based smart contracts implementing cross-chain minting using Chainlink's CCIP and the development of the associated minting dApp using Next.js/React, Wagmi, and TailwindCSS (Typescript).
- Implemented, tested, and deployed an ERC20 contract with transaction tax collection and token redistribution, achieving a 100% improvement in gas efficiency compared to previous implementations. Also, developed the project website with real-time burn wallet and reflection tracker using Next.js/React, and Wagmi.
- Directed the development of decentralized applications, collaborating with development partners to successfully introduce an NFT marketplace and a decentralized exchange.

Research Engineer / Computational Scientist

Northwestern University, Evanston, IL

September 2016 – April 2023

- Lead and managed 3 projects from conceptualization to 3 impactful journal articles including overseeing the full software development lifecycle (C++/Python), thorough data analysis (Python/Matlab), and comprehensive documentation (Git).
- Effectively communicated with cross-functional teams to obtain empirical data for algorithmic parameter optimization and validation using a high-performance computing (HPC) cluster which increased algorithm performance by 50%.
- Successfully implemented a Linux-based simulation framework in C++ by adopting an innovative approach and leveraging an open-source physics library resulting in a software release and a research progress award.
- Engineered a data pipeline for processing 3D imaging data, applying advanced statistical analysis and machine learning techniques to identify features and trends. The method received positive feedback from expert reviewers of a high-impact journal with an acceptance rate of 9%.
- Led data collection process overhaul by implementing advanced equipment and modernizing data acquisition methods. This initiative achieved a two-orders-of-magnitude enhancement in data precision and resolution in just two months.
- Supervised three junior researchers, providing mentorship and guidance, resulting in a 100% project completion rate and successful knowledge transfer.

Data Science Intern

Shure Incorporated, Niles, IL

June 2021 – August 2021

- Developed and tested deep learning models using Python (PyTorch, Scikit-Learn) on Amazon Web Services (EC2, S3, SageMaker), resulting in the company's inaugural synthetic voice generation model.
- Led acoustic simulation design and execution, collaborating with cross-functional teams and delivering documented proof of concepts to company leadership.

PERSONAL PROJECTS & INTERSTS

Smart Contract Projects

- Besides my professional work, I'm committed to continuous learning and improvement of my development skill through projects such as smart contract lottery, stable coin defi protocol, airdrop utility (including merkle proofs), and account abstraction.

Crypto Communities

- Co-founder of two crypto projects, EARN and Touch Grass, with a total of 4000+ members and 1800 token holders.
- Co-founder of the community EARN Crypto with 4000+ members that is dedicated to bringing Web3 adoption to the masses through education and technical support including the planning and organizing crypto events with the goal of building a web3 community in Chicago.

CERTIFICATES

Encode Solidity Bootcamp

- Completed 8 weeks of bootcamp covering web3 frontend (Next.js/React), backend (Nest.js API, Swagger), and smart contract development (Hardhat, Solidity) resulting in multiple web3 dApps including a token ballot, a lottery, and a betting dApp.

EDUCATION

PhD in Biomedical (Neural) Engineering
Northwestern University, Evanston, IL

Master of Science in Engineering
Grand Valley State University, Grand Rapids, MI

Bachelor of Science in Engineering
Zurich University of Applied Sciences, Switzerland

PUBLISHED SOFTWARE

WHISKiT Physics Simulator (2021) A research simulation tool that implements a physics model to simulate the mechanics of rat whiskers based on custom code and the Bullet Physics Library, written in C++.
Code: https://github.com/SeNSE-lab/whiskitphysics

PEER-REVIEWED JOURNAL PUBLICATIONS

Zweifel NO, Bush N, Abraham I, Murphey T, Hartmann MJZ (2021) A dynamical model for generating synthetic data to quantify active tactile sensing behavior in the rat. *Proceedings of the National Academy of Sciences* Jul 2021, 118 (27) e2011905118; DOI: 10.1073/pnas.2011905118

Zweifel NO, Solla SA, Hartmann MJZ (2022) Statistical characterization of tactile scenes in three-dimensional environments reveals filter properties of somatosensory cortical neurons. *Nature Communications (in review)*
Preprint: https://www.biorxiv.org/content/10.1101/2022.08.03.502632v1

My complete publication record can be found on Google Scholar.