

Nadina (Oates) Zweifel

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FULL STACK / 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 4 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)
Hardhat / Foundry / Slither	Node.js / Nest.js / Next.js	Python / C++	Machine Learning

WORK EXPERIENCE

Full Stack / Blockchain Developer

Self-employed

May 2021 - Present

- Designed and developed project websites for cryptocurrency projects and 4 NFT Web3 applications 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.
- Conceptualized and delivered a web3 betting platform, taking it from ideation to production leveraging Next.js/React, and HTML/CSS for frontend and Node.js/Nest.js for backend REST API, with TypeScript.
- Directed the development of decentralized applications (dApps), 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

Oates Talk Crypto

- Co-founder and active member of the community “Oates Talk Crypto” with 100+ members that is dedicated to bringing Web3 adoption to the masses through education and technical support.
- 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](https://doi.org/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](#).