

# Nadina (Oates) Zweifel

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## FULL STACK / BLOCKCHAIN DEVELOPER

- Continuous learner and versatile full stack web developer with a strong business 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 3 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

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

## WORK EXPERIENCE

### Full Stack / Blockchain Developer

#### Self-employed

May 2021 - Present

- Designed and developed project websites for cryptocurrency projects and two 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**

### **YouTube Channel @N0\_crypto**

- Reviews of different crypto and web3 projects yielding 150+ subscribers and 3500+ views.

### **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](#).**