HENRY DEUTSCH

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EDUCATION

Johns Hopkins University | B.S. in Computer Science, minor in Robotics | Baltimore, MD   **Expected May 2025**
Courses: Full-Stack JavaScript, Artificial Intelligence, Machine Learning, Computer Science Innovation and Entrepreneurship, Computer Graphics, Data Structures, Intro Algorithms, Intermediate Programming, Computer System Fundamentals, Introduction to Computational Methods, Mathematical Foundations for CS, Calculus III, Physics II

WORK EXPERIENCE

KnoWhiz | *Software Engineering Intern*   May 2024 - Oct 2024
Summary: Developed full-stack features for 1.1v of the LLM-based AI Learning platform with personalized courses
- Designed and implemented **RESTful APIs** in **Java** to fetch and serve course data to the **Typescript** front-end
- **Mentored** 2 junior front-end developers on the team on **React & Node.js**; wrote comprehensive documentation of best practices
- **Led a cross-functional team** for a new 'explore page' with 3 other interns, accounting for over 90% of organic traffic. The page features personalized course recommendations and search functionality, using **Redux** for state management

Helpful Engineering | *Web Development Intern*   Jan 2024 - May 2024
Summary: Led development of an internal platform that allows volunteers to work on open projects requiring technical expertise
- Contributed to the in-house UI library by implementing Figma designs as **React** components and web pages with **AWS Amplify**
- Integrated **CI/CD** with **Docker**, greatly improving the deployment speed of the web app in their **AWS cloud** environment

National Institute of Standards and Technology (NIST) | *Software Engineering Intern*   May 2023 - Aug 2023
Summary: developed full-stack app to analyze video taken from disaster relief sites by NIST for statistical analysis
- Developed a **Python** and **SQL** backend and **Dash** frontend, implementing 2-week **agile sprints** with **Scrum** practices
- Led revision of **SQL** database for uploading broader data, and of Dash UI to support text queries and more video analysis features
- Integrated **transformer**-based **deep neural network** model in back-end to run data science analyses of structured audio data.

FinMark Partners | *Software Development Intern*   May 2022 - Aug 2022
Summary: Contributed to frontend of the company website, and developed HTML emails for FinMark's clients
- Translated Figma design mockups into web components using **React**, adhering to mobile-first design principles
- Used **Salesforce CRM** to develop and manage HTML email campaigns targeting FinTech firms, which collectively converted 1k+ clicks & pageviews. Optimized Click-Through Rate (CTR) by 3% with **A/B testing**

Freelance Full Stack Developer   Sep 2021 - Aug 2022
Summary: Created an interactive website for learning & quizzing material from a book by a Ret. Chief of the NYC Fire Dept
- Parsed the pdf of the book with custom **Java** script to dynamically generate **HTML & CSS** content for website
- Developed an interactive quiz with **React** and **Javascript**, with dynamically-generated backlinks to the content sections of website
- Improved **SEO** with **Google Analytics, Google Search Console**, optimized assets, etc. increasing organic traffic from <100 pageviews per month to **2.7k pageviews per month**. Enhanced SERP ranking led to **~50% increase in book sales** for my client

SOFTWARE PROJECTS

N-Body Orbit Simulations
Studied **Artificial Intelligence** & **Machine Learning** tools to create a compressed numerical representation of simulated orbit paths
- Built **convolutional, dense, autoencoder** neural networks with **PyTorch**; Used **Scikit-Learn**, **Numpy, NEMO** to model orbits
- Classified orbit paths by their latent space in the NN with **K-means, Hierarchical, Agglomerative** clustering methods in **Python**
- Integrated **EC2 AWS Cloud** service for development of scalable machine learning models

CheckItOut: Computer Vision Powered Solution to Checkout
Placed 3rd /43 teams in HopHacks 2022 (city-wide hackathon in Baltimore)
- Developed **Python backend**, used **Flask** for **REST API, TensorFlow** for deep learning model, **OpenCV** for detection, and website with **React** and **Typescript**
- Implemented transfer learning on the **MobileNetV2** architecture pre-trained on ImageNet and added custom classification layer
- Built a checkout counter with automatic detection of grocery items, an integrated scale and overhead camera

TECHNICAL SKILLS

Languages: Python, Javascript, Typescript, Java, C++, SQL, HTML, CSS
Web Dev: React, Node.js, Express.js, MongoDB (MERN stack), Next.js, Tailwind, SEO
Other Software: Git, GitHub, Unix/Linux, Docker, Dash, PyTorch, AWS DevOps, Amplify, EC2; DSA