

# Henry Deutsch

HenryMDeutsch@gmail.com • [Linkedin](#) • [GitHub](#)

Personal website: [henry-deutsch.com](https://henry-deutsch.com)

## EDUCATION

**Johns Hopkins University** | 3.36/4.00 GPA, 1570/1600 SAT, B.S. in Computer Science, minor in Robotics, May 2025

**Courses:** Machine Learning, Computer Graphics, Data Structures, Intro Algorithms, Intermediate Programming, Computer System Fundamentals, Introduction to Computational Methods, Mathematical Foundations for CS, Probability and Statistics, Calculus III, Differential Equations and Applications, Physics II

## SKILLS

**Languages:** Python, Javascript, Typescript, jQuery, Java, C, C++, SQL, HTML, CSS

**Web Dev:** React, Node.js, Express.js, MongoDB (MERN stack), Bootstrap, Search Engine Optimization (SEO)

**Software:** Git, GitHub, Unix/Linux, Dash, PyTorch

## WORK EXPERIENCE

**Johns Hopkins**, Remote

*Software Engineer*, May 2023 - Aug 2023

Developed [full-stack app](#) in association with NIST to analyze video taken from disaster relief sites for statistical analysis

- Conducted 2-week **agile sprints**, implementing **Scrum** practices to develop full stack app with **SQL database**, **Python backend**
- Developed and iterated on SQL database for uploading data & metadata. Dash UI supported text queries and analysis features
- Experimented with **transformer-based deep NN** model in back-end to transcribe audio data uploaded, to be queried in UI

**FinMark Partners**, Remote

*Software Developer*, Sep 2022 - May 2023

Financial Marketing firm specializing in website design, HTML emailers, Brand Development & Rebranding

- **Front end website developer**; focused on debugging and adding modular features adhering to mobile-first design principles
- Used **Salesforce CRM** to develop automated email campaigns. Used A/B testing to optimize click-through rate (CTR)
- Advised representatives of financial institutions and hedge funds about efficacy and feasibility of email campaigns

**Freelance Full Stack Developer**, Remote

*Full Stack Developer*, Sep 2021 - Oct 2022

Turned a client's book, "A Firefighter's Battlespace," into a [website](#) with integrated quiz elements.

- Wrote **Javascript** to parse pdf to dynamically generate HTML book content
- Developed interactive UI with quiz elements, using AJAX to create dynamic links to references. Used **Bootstrap** for styling
- Improved SEO with Google Analytics, Google Search Console, optimized assets, etc. increasing organic traffic
- Site gained digital traction w/ **2.7k pageviews per month**. Enhanced SERP ranking led to **~50% increase in book sales** for client

## SOFTWARE PROJECTS

### [N-Body Galaxy Simulations](#)

- Studied Artificial Intelligence & Machine Learning tools to analyze simulated orbit paths and distill them into a set of features
- Built convolutional, dense, autoencoder neural networks with **PyTorch**; Modeled orbits with NEMO to generate training data
- Classified orbit paths by their latent space in the autoencoder with K-means, Hierarchical, Agglomerative clustering methods
- 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)

- Built a checkout counter with an integrated scale, overhead camera, and processing unit for automatic detection of grocery items
- Implemented transfer learning on the MobileNetV2 architecture pre-trained on ImageNet and added custom classification layer.
- Developed **Python backend**, used Flask for REST API, TensorFlow for deep learning model, OpenCV for detection, and [website](#)
- Used Fusion360 for design, Solidworks for simulations, Corel Draw for computer-aided manufacturing (CAM), UCP for G-code

### **Web Developer in OCRA**

- Developed website for the Town of Mamaroneck to streamline the process of reserving sports fields for kids' sports leagues
- Developed the UI and integrated **RESTful APIs** for google calendar reservations
- Collaborated in meetings with town administrators