Henry Deutsch

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EDUCATION

Johns Hopkins University | 3.27/4.00 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, Multivariate Calculus, Differential Equations and Applications, Physics II

SKILLS

Languages: Python, Javascript, Typescript, jQuery, Java, C, C++, SQL, HTML, CSS, Sass
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 video and 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
- Leveraged 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 Website 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 significant digital traction w/ 2.7k pageviews per month. Enhanced SERP ranking led to ~50% increase in book sales

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 models, OpenCV for detection, and a 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