Peter Van Esch

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Education

University of California, Santa Cruz   **Fall 2021 - Present (Expected Spring 2025)**
BS in Computer Science, Minor in Mathematics   ***GPA: 3.91***

Projects

Findr
- My first IOS app written with Swift and SwiftUI. Using firebase to support our database, all app users sign in to take photos that they think will make a good post. The goal is to 'Find' each other's posts, by taking a very similar photo. By comparing location and image data, the post is either found or unfound.

Redlands Corners
- Written with Vue, created a website that displays a local corner house from the city of Redlands and gives the user five attempts to guess the street intersection. To help, the site also contains embedded google maps to narrow down the area of search.

Mars Orbit Builder
- Using data from online about the direction of Mars and the direction of the Sun, I took the data in pairs of a martian year and used basic trigonometry to recreate what Johannes Kepler did in the 15th century. By taking dates a martian year apart I calculated where Mars is. With enough data you could find many points and shape our Mars' orbit, just as Kepler did centuries ago.

NutriCards
- An in progress subscription based product written with Next.js and using firebase, stripe and openAI. The subscription service generates any recipe the user desires and gives a complete breakdown of the ingredients and their nutritional value along with the directions to prepare the dish.

AI Virtual Assistant
- Using Next.js, Open AI and deployed to Vercel, my AI assistant is an AI version of myself trained and updated on my features, accomplishments and other information. The goal being that potential employers have the ability to get to know me and get to know what projects and interests I have before they decide to interview me.

Image Classification Vision Transformer
- Written in python for my deep learning final project, this model makes use of transfer learning. Using the VIT-16 from facebook research I froze the layers of the pretrained model, and replaced the head with my own linear layers to classify 1000 images making up 100 different classes. The model performed extremely well and placed 3rd in the class.

Automated Content
- Developed in python, a script that takes celebrity images and names off the web and puts them into a slide show for the audience to rank by favoritism. The script then screen records the slide show to make a final video ready to upload to Youtube.

RSA Encryption
- Written in C, using the product of two large primes numbers as the basis for a public and private exponents. Program could create or open text files and images to encrypt and decrypt.

Huffman Encoding
- Developed in C, implemented stacks, priority queues, linked lists, and binary trees to create Huffman Encoding. Any file could be encoded and decoded dramatically reducing the size of the file.

Work Experience

Headstarter - Software Engineering Fellow - July 2024-Present
- Built and deployed 5 AI projects in 5 weeks using React JS, Next.js, Firebase, Clerk, and Vercel, following agile methodologies with weekly sprints and incorporated CI/CD practices for iterative deployment. Additionally Participated in weekly sessions with engineers from Google, Y Combinator, Stanford, Amazon and venture-backed startups

Environment California - Field and Fundraising Associate - June 2024 - August 2024
- Worked to help build and fundraise the Summer 2024 campaign to expand marine protected areas of the coast of California. Helped raise funds and awareness by engaging with community members about environmental conservation initiatives

UCSC CSE 144 Tutor   - Deep Learning Group Tutor - March 2024 - June 2024
- After taking the course in deep learning and tremendously succeeding, I transitioned into being a course tutor. This involved helping students understand course concepts, preparing them for exams and giving guidance on homework.

UCSC STAT 131 Tutor   - Statistics for Computer Science Tutor - March 2024 - June 2024
- Again with great success in Introduction to Probability Theory, I was able to further demonstrate my skills by becoming a course tutor. Similar to my other tutor role, my responsibilities revolved around providing general assistance to students.

Skills

- SwiftUI, Node.js, React, Vercel, Firebase, Stripe, Python, Pandas, OpenCV, Scikit-learn, Matplotlib, C, C++, Javascript, WebGl, HTML, Vue, Calculus, Mathematics, Github, Visual Studio Code, Communication, Teamwork, Creative Problem Solving

Hobbies and other activities

- UCSC Men's Ultimate Frisbee Team, running, hiking, woodworking, mathematics, cooking, traveling