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6/3/2025

CS 499

Journal 4: Computer Science Trends

The two trends I have chosen are fitness and food ingredient consciousness. Both trends are related to an increasing desire people have to improve their health. With the dramatic increase in cancer rates and disease many are starting to evaluate their physical health and what they are putting into their bodies.

The trend behind food ingredient consciousness has come from an increase in disease and individuals looking for possible causes. Consumers want to know what they are putting in their bodies and where it’s coming from. “By scanning a QR code on a package, consumers can retrieve detailed information about origin, harvest dates, and even agricultural practices” (Siegner, 2020). Consumers want to see what all is being put into their food but also want to understand why certain ingredients are being added to products. One of the major questions consumers have is about whether dyes are necessary and why they are added.

There has always been a focus on fitness but recently there has been an increase with the rise in illnesses and individuals looking for ways to improve their health. Fitness has evolved from simply having a gym membership to using wearable devices and virtual reality. Fitness revolves around continuous biometric monitoring through devices that track heart rate, sleep patterns, and daily activity levels in real time. “Trainers and physical therapists are increasingly using remote-monitoring platforms to correct clients’ form or adjust rehabilitation exercises based on live biometric feeds” (Liu et al., 2022). Virtual reality workouts have become more engaging, turning workouts into something like a video game.

These trends will both have different roles in changing the field of Computer Science. When it comes to food and being able to track where it comes from, existing systems will need to be utilized, or new systems will need to be created. “Engineers must design scalable, secure ledger systems (often blockchain-based) that record every transaction and event along the supply chain so that data remains tamper-proof and instantly accessible” (Subramanian et al., 2023). With fitness, the increase of wearables and VR will require new technologies to be developed. “Computer scientists will specialize in embedded-systems and firmware development for wearables that continuously collect biometric data while conserving battery life” (Shajari et al., 2023). Wearables will be creating a lot of data that will need to be analyzed ethically. Also, wearables will be helpful for giving users early warnings for potential issues with their health. “Data scientists and machine-learning engineers will train predictive analytics models, often using federated learning, to identify early warning signs of health issues without exposing raw data” (Liu et al., 2022).

These trends will change how consumers, workers, and citizens experience technology. When it comes to food consumers will expect to have instant access to complete ingredient histories. They will want nutrient profiles, verified ethical sourcing, and the ability to select products that align with dietary restrictions or sustainability goals. They will want this to be easily accessible via a mobile application. “Regulators will mandate digital labeling standards and conduct periodic audits to enforce transparency, balancing public health priorities with data privacy concerns” (Subramanian et al., 2023). With fitness consumers will begin to accept new forms of fitness. “VR spin classes, AI-driven strength-training apps, and gamified community challenges that transcend geographic boundaries” (Recibas, 2025). VR will give users the ability to have 1 on 1 or group sessions with trainers without leaving the comfort of their home. Health care providers will be able to monitor their patients from the data being collected from their wearable devices. This will also lead to the ability to give a more personalized approach to medical care, which is currently a luxury in our inundated medical system.

Both trends fit into my career interests in some form. I have stated in pervious journals that I would like to work in the video game industry or with a small startup. Fitness moving into the VR area would be an area where I could blend video games with fitness. As advancements continue wearable technology will increase the experiences available and how realistic they seem. As games move away from controllers and the human body becomes the controller players will need to increase their fitness to be able to play games. A startup could be an opportunity to break into the food ingredient trend. It would be a way to develop new technologies to meet the needs of consumers. The smaller more personalized style of a startup would be able to take feedback from users and deliver the products they need or develop it specifically for industry uses. I could see myself working with either of the topics in a variety of ways.

Currently, I have completed the three categories of my enhancement plan. The enhancements made for category one: Software Design and Engineering have allowed me to demonstrate my skills through structured development of my Travlr project, focusing on modularity, maintainability, and clear documentation. With category two: Algorithms and Data Structures I showed how I am able to optimize algorithms and implement logic while maintaining clarity and efficiency. With category three: Databases, I’ve improved my ability to design normalized schemas, integrate secure queries, and manage CRUD operations through practical enhancements. I still need to make some adjustments to finalize my artifact for my ePortfolio submission. With the additional elements that will be completed I hope to achieve all course outcomes.

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| Checkpoint | Software Design and Engineering | Algorithms and Data Structures | Databases |
| Name of Artifact Used | Travlr web app | Travlr web app | Travlr web app |
| Status of Initial Enhancement | Completed, refactored for better modularity, adjusted UI to allow for additional pages | Completed, implement new logic for search queries and integrated search feature into UI | Completed, booking schema created, added API endpoints for booking, created and integrated registration and login |
| Submission Status | Submitted | Submitted | Submitted |
| Status of Final Enhancement | Completed, ready to upload | Completed, ready to upload | In progress, some minor UI changes still needed |
| Uploaded to ePortfolio | Not uploaded | Not uploaded | Not uploaded |
| Status of Finalized ePortfolio | Not completed | Not completed | Not completed |

Works Cited

Liu, X., Gao, B., Suleiman, B., You, H., Ma, Z., Liu, Y., & Anaissi, A. (2022, March 23). *Privacy-preserving personalized fitness recommender system (p3fitrec): A Multi-level Deep Learning Approach*. arXiv.org. https://arxiv.org/abs/2203.12200

Recibas, K. (2025, January 24). *Fitness trends in 2025: What’s hot and what’s not*. Mirrors Delivered. https://mirrorsdelivered.com/blogs/industry-news-trends/fitness-trends-in-2025-what-s-hot-and-what-s-not

Shajari, S., Kuruvinashetti, K., Komeili, A., & Sundararaj, U. (2023, November 29). *The emergence of AI-based wearable sensors for Digital Health Technology: A Review*. MDPI. https://www.mdpi.com/1424-8220/23/23/9498

Siegner, C. (2020, January 6). *Consumers can trace coffee beans through new blockchain app*. Food Dive. https://www.fooddive.com/news/consumers-can-trace-coffee-beans-through-new-blockchain-app/569806/

Subramanian, N., Joshi, A., & Bagga, D. (2023, May 20). *Transparent and traceable food supply chain management*. arXiv.org. https://arxiv.org/abs/2305.12188