

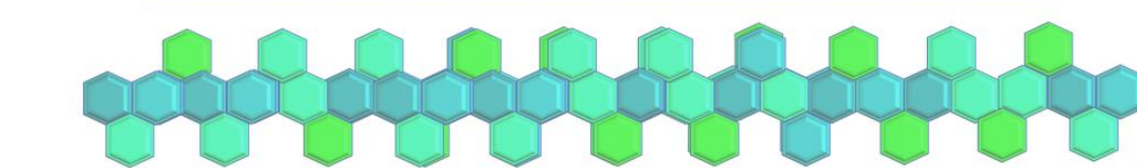


Bionic Fusion Strand Design: Bionic Car

Bionic UX Design with Fusion Strands

Value Stream: *Bionic car that has integrated sensors, bionic cognitive agents, immersive interfaces, autonomous driving, collaborative engagement, intelligent systems optimization, enhanced sensors for improved environmental awareness.*

User Journey(s)				
User Experience <i>Integrated, Environmentally Connected, Intelligent Transportation</i>	User Experience Autonomous Driving	User Experience External Connectivity	User Experience Collaboration	User Experience Decision Support
User Motivation	- specific motivation or driver for why the user wants to engage in a UX interaction: <i>As a driver (or passenger) in a bionic car, I want my car to simplify my driving experience, aid in all aspects of driving, planning, route planning, environmental awareness to improve safety and interconnectivity with all online resources and omnipresent personal bionic agents.</i>			
User Objective	- specific user experience objective of the user: <i>I want to be able to interact with my car and its systems in a holistic, integrated way where the intelligence of the car is fully integrated across systems and with my personal bionic enterprise agents, and home systems.</i>			
User Expectation	- specific outcome, effect, result the user is seeking/desiring: <i>I want car and driving functions to be assumed by the car and its robots and systems as delegated responsibilities, but approved by me through coordination and collaboration.</i>			
User Task/Step/Action	- specific action a user is attempting to accomplish: <i>Task=provide driving assistance/automation, Task=manage systems, navigation, planning, safety.</i>			



Bionic Fusion Strand Specification Full Technology Stack

Bionic Experience Effect Type <i>(Bionic UX Effects)</i>
User Interface Modality <i>(Bionic Technology Taxonomy: Interface Technologies) (Bionic System Functions Taxonomy: Interface Functions)</i>
Bionic Interaction Technology Area <i>(Bionic Technology Taxonomy: Interaction Technologies) (Bionic System Functions Taxonomy: Interaction Functions)</i>
Bionic Intelligence Technology Area <i>(Bionic Technology Taxonomy: Intelligence/Cognition Technologies) (Bionic System Functions Taxonomy: Intelligence Functions)</i>
Bionic Integration Technology Area <i>(Bionic Technology Taxonomy: Integration Technologies) (Bionic System Functions Taxonomy: Integration Functions)</i>
Bionic Infrastructure Technology Area <i>(Bionic Technology Taxonomy: Infrastructure) (Bionic System Function Taxonomy: Infrastructure)</i>
Bionic Transformation Technology Area <i>(Bionic Technology Taxonomy: Transformation) (Bionic System Function Taxonomy: Transformation)</i>



Bionic Car Fusion Strand Narrative

In this use case, we will explore how bionic effects, empowered by AI/ML capabilities and robotic technologies, can improve the capabilities and user experience of a bionic automobile. These technologies will enhance safety, driving efficiency, and overall vehicle performance. In the context of a bionic automobile, the integration of AI/ML capabilities and robotic technologies enhances driving safety, efficiency, and overall user experience. These technologies contribute to more intelligent and adaptive vehicles that optimize driving tasks and ensure a seamless and enjoyable journey.

User Persona Model

Bionic Effects			
Capability Area 1: Interface	1. Immersion: - Description: Creating an immersive in-car entertainment experience using virtual reality (VR) or augmented reality (AR) technologies. - Bloom's Taxonomy Level: Comprehension - Verbs: Interacting, Immersing - AI/ML Capabilities: Personalized Entertainment (prescriptive), Augmented Reality Display (prescriptive) - AI/ML Methods: User Behavior Analysis (personalization), AR Interface Development (augmented reality)	Capability Area 1: Interface	9. Task Precision: - Description: Enhancing parking accuracy with AI-guided parking assistance systems. - Bloom's Taxonomy Level: Application - Verbs: Enhancing, Ensuring, Improving - AI/ML Capabilities: Parking Assistance (prescriptive), Sensor Integration (prescriptive) - AI/ML Methods: Sensor Fusion (sensor integration), Path Planning (parking assistance)
Capability Area 1: Interface	2. Empathizing: - Description: Utilizing emotion recognition technology to understand and respond to the driver's emotions and intentions. - Bloom's Taxonomy Level: Comprehension - Verbs: Understanding, Recognizing, Responding - AI/ML Capabilities: Emotion Recognition (descriptive), Contextual Response (prescriptive) - AI/ML Methods: Facial Expression Analysis (emotion recognition), Natural Language Processing (contextual response)	Capability Area 2: Intelligence	10. Task Augmentation: - Description: Augmenting the driving experience with AI-generated insights on vehicle diagnostics and maintenance. - Bloom's Taxonomy Level: Synthesis - Verbs: Augmenting, Enhancing, Providing - AI/ML Capabilities: Vehicle Diagnostics (prescriptive), Maintenance Recommendations (prescriptive) - AI/ML Methods: Machine Learning (diagnostics), Predictive Maintenance (maintenance recommendations)
Capability Area 2: Intelligence	3. Mentoring: - Description: Providing real-time driving advice and guidance using AI-powered driver assistance systems. - Bloom's Taxonomy Level: Application - Verbs: Guiding, Advising, Providing - AI/ML Capabilities: Driver Assistance (prescriptive), Knowledge Integration (prescriptive) - AI/ML Methods: Advanced Driver Assistance Systems (ADAS), Expert Systems (knowledge integration)	Capability Area 2: Intelligence	11. Task Elasticity and Scalability: - Description: Adapting vehicle functions and configurations based on user preferences and driving contexts. - Bloom's Taxonomy Level: Synthesis - Verbs: Adapting, Customizing, Scaling - AI/ML Capabilities: Adaptive Systems (prescriptive), User Profile Analysis (prescriptive) - AI/ML Methods: User Behavior Analysis (adaptive systems), Clustering (user profile analysis)
Capability Area 2: Intelligence	4. Collaborating: - Description: Enabling vehicle-to-vehicle (V2V) communication for coordinated traffic flow and collision avoidance. - Bloom's Taxonomy Level: Application - Verbs: Collaborating, Coordinating, Communicating - AI/ML Capabilities: V2V Communication (prescriptive), Traffic Flow Optimization (prescriptive) - AI/ML Methods: Wireless Communication Protocols (V2V communication), Traffic Simulation (traffic flow optimization)	Capability Area 3: Integration	12. Full Task Automation and Autonomous Driving - Description: Enabling fully autonomous driving capabilities, eliminating the need for human intervention. - Bloom's Taxonomy Level: Synthesis - Verbs: Automating, Replacing, Operating - AI/ML Capabilities: Full Autonomy (prescriptive), Sensor Integration (prescriptive) - AI/ML Methods: Deep Learning (autonomous driving), Sensor Fusion (sensor integration)
Capability Area 2: Intelligence	5. Informational: Decision Support: - Description: Providing real-time data about road conditions, traffic patterns, and weather to support driving decisions. - Bloom's Taxonomy Level: Knowledge - Verbs: Providing, Supporting, Enhancing - AI/ML Capabilities: Data Analytics (descriptive), Predictive Models (prescriptive) - AI/ML Methods: Data Fusion (road information), Weather Forecasting (predictive models)	Capability Area 1: Interface	13. Biometric Vehicle Access: - Description: Using biometric authentication to access and start the vehicle. - Bloom's Taxonomy Level: Application - Verbs: Authenticating, Accessing, Starting - AI/ML Capabilities: Biometric Recognition (prescriptive) - AI/ML Methods: Facial Recognition (biometric recognition)
Capability Area 1: Interface	6. Partial Task Automation (mechanical, digital/cognitive): - Description: Implementing autonomous driving features for tasks such as lane keeping and adaptive cruise control. - Bloom's Taxonomy Level: Application - Verbs: Automating, Assisting, Controlling - AI/ML Capabilities: Autonomous Driving (prescriptive), Sensor Integration (prescriptive) - AI/ML Methods: Computer Vision (autonomous driving), Sensor Fusion (sensor integration)	Capability Area 1: Interface	14. Adaptive Lighting: - Description: Adjusting vehicle lighting based on external conditions and driver preferences. - Bloom's Taxonomy Level: Application - Verbs: Adjusting, Adapting, Enhancing - AI/ML Capabilities: Light Sensing (prescriptive), Contextual Analysis (prescriptive) - AI/ML Methods: Light Sensors (light sensing), Context Recognition (contextual analysis)
Capability Area 2: Intelligence	7. Task Acceleration: - Description: Predicting the optimal acceleration patterns for fuel efficiency and reduced emissions. - Bloom's Taxonomy Level: Application - Verbs: Predicting, Optimizing - AI/ML Capabilities: Predictive Modeling (predictive)	Capability Area 1: Interface	15. Sensory Augmentation: - Description: Augmenting vehicle sensors to improve perception and response to the environment. - Bloom's Taxonomy Level: Application - Verbs: Augmenting, Enhancing, Sensing - AI/ML Techniques: Sensor Fusion for multi-modal perception, AI-driven Vision Systems for enhanced object detection.

Bionic UX Effects

- Mentoring
- Collaboration
- Empathizing
- Partial Task Automation
- Task Acceleration
- Immersion (UX/VR/AR)
- Task Augmentation
- Task Elasticity & Scalability
- Task Autonomy
- Task Precision
- Task Accuracy
- Decision Support