ChatGPT

Comprehensive UX/UI Design Knowledgebase for AI Training

UI/UX Design Heuristics and Design Systems

Title / Source	Subject Focus	Type	Format	Summary & Relevance
Nielsen's 10 Usability Heuristics (NN/g)	Core interaction design heuristics (usability)	Guideline (industry)	Web article (HTML; PDF poster)	Jakob Nielsen's ten general principles for UI design (e.g. visibility of system status, match to real world, error prevention) are *"broad rules of thumb and not specific usability guidelines"* [1]. Widely used in heuristic evaluations, these heuristics serve as a standard checklist to identify UX problems [2]. *Download note:* Available as a web page [1] and a one-page PDF poster; a summary document can be provided for model training.

Title / Source	Subject Focus	Type	Format	Summary & Relevance
Shneiderman's Eight Golden Rules	Fundamental UI design principles	Guideline (academic)	Book excerpt / summary (HTML)	Ben Shneiderman's eight timeless principles (consistency, universal usability, informative feedback, dialogs yielding closure, error prevention, easy reversal of actions, user control, reduce short-term memory load) distill decades of HCI experience [3]. They are widely regarded as key to *"design great, productive and frustration-free user interfaces…reflected in products by Apple, Google and Microsoft"* [4]. *Download note:* Originally in Shneiderman's textbook; can be summarized in a PDF for training.
Google Material Design 3 Guidelines	Comprehensive design system (Google)	Design system documentation	Website (HTML, open-source assets)	Material Design is Google's open-source design system *"of guidelines, components, and tools that support the best practices of user interface design"* [5]. It provides cohesive UX principles (motion, layout, typography, etc.) and UI components across Android, web, and Flutter, enabling consistent, accessible, visually appealing products [6]. *Download note:* No single PDF (web docs); a curated Markdown/PDF summary of key Material guidelines can be created for the dataset.

Title / Source	Subject Focus	Type	Format	Summary & Relevance
Apple Human Interface Guidelines (HIG)	Platform-specific UI/UX guidance (Apple iOS/ macOS)	Official design guidelines	Website (HTML)	Apple's HIG is *"a comprehensive resource for designers and developers looking to create great experiences across Apple platforms"* [7]. It covers OS-specific UX principles (e.g. clarity, deference, depth), UI components, and best practices to ensure apps meet Apple's usability and aesthetic standards. Continuously updated (including newest platforms like visionOS), it's a key reference for designing consistent, intuitive Apple app interfaces [8]. *Download note:* Available via Apple's developer site (HTML); a summary PDF can be compiled for training use.

Title / Source	Subject Focus	Type	Format	Summary & Relevance
IBM Carbon Design System	Enterprise design system (IBM)	Design system (open-source)	Website (HTML, some PDFs)	Carbon is IBM's open-source design system for digital products. *"With the IBM Design Language as its foundation, the system consists of working code, design tools and resources, human interface guidelines, and a vibrant community"* [9]. It provides components, icons, grids, and UX standards to build consistent UIs, particularly for enterprise applications. Carbon's emphasis on accessibility and modularity makes it a valuable resource for UX best practices. *Download note:* Documentation is on the web; selected guidelines or the Carbon handbook can be saved as PDF/MD for the dataset.

Title / Source	Subject Focus	Type	Format	Summary & Relevance
Microsoft Fluent Design System (Fluent UI)	Cross-platform UI framework (Microsoft)	Design system (open-source)	Website (HTML, code library)	Fluent is Microsoft's unified design system and UI toolkit for creating consistent experiences across Windows, Web, iOS, Android, etc. *"It is a collection of UX frameworks for creating cross-platform apps that share code, design, and interaction behavior"* [10]. Fluent provides design principles (Light, Depth, Motion, Material, Scale), components, and accessibility guidance to ensure apps feel natural on all devices [10]. *Download note:* Documentation and component library are online; key guidelines can be compiled into a PDF summary.

Title / Source	Subject Focus	Type	Format	Summary & Relevance
Shopify Polaris Design System	E-commerce admin UI design system (Shopify)	Design system (industry)	Website (HTML, React components)	Polaris is Shopify's design system, a *"comprehensive toolkit that empowers developers and designers to create seamless and user-friendly experiences within the Shopify admin environment"* [11]. *It includes reusable UI components, patterns, and guidelines ensuring consistency, accessibility, and efficiency in merchant-facing interfaces* [11] [12]. *Polaris is also used by third-party app developers to match Shopify's UX, making it a prime example of coherent UX design practice.* Download note:* Provided as web documentation and an open-source React library; a distilled PDF/MD guide can be prepared.

Title / Source	Subject Focus	Type	Format	Summary & Relevance
Adobe Spectrum Design System	Cross-product design language (Adobe)	Design system (enterprise)	Website (HTML, some PDFs)	Spectrum is Adobe's design system with guidelines and components for a unified experience across Adobe's products. *"Spectrum is Adobe's design system, with design guidelines and recommended components to create a unified experience across all Adobe Clouds"* [13] . It standardizes UI elements (color, iconography, typography) and ensures accessibility and cohesion in apps like Photoshop, XD, etc. *Download note:* Documentation on spectrum.adobe.com (HTML); an overview PDF (e.g. *Spectrum 2* announcement) or compiled notes can be provided for training.

Accessibility Standards and Inclusive Design

Title / Source	Subject Focus	Type	Format	Summary & Relevance
W3C WCAG 2.2 (Web Content Accessibility Guidelines)	Web accessibility guidelines (latest)	Standard (W3C Recommendation)	Web standard (HTML)	The international standard for web accessibility. WCAG 2.2 *"covers a wide range of recommendations for making web content more accessible"*, ensuring content is usable by people with disabilities (blindness, low vision, hearing loss, mobility impairments, cognitive limitations, etc.) [14]. Following WCAG improves general usability for all users [15]. Version 2.2 (W3C Recommendation October 2023) adds 9 new success criteria to 2.1, reflecting modern needs (e.g. for mobile, cognitive). *Download note:* Available as an HTML spec. A consolidated PDF of WCAG 2.2 or official quick-reference can be used in the dataset.

Title / Source	Subject Focus	Type	Format	Summary & Relevance
WAI-ARIA (Accessible Rich Internet Applications) 1.2	Accessible UI semantics (roles/ properties)	Standard (W3C Recommendation)	Web standard (HTML)	WAI-ARIA defines an ontology of accessibility roles and attributes for web applications. *"This specification provides an ontology of roles, states, and properties that define accessible user interface elements and can be used to improve the accessibility and interoperability of web content and applications."* [16] By adding ARIA markup (roles like `button`, `alert`, etc.), developers can enhance assistive technology support in dynamic content (SPA, AJAX, etc.). ARIA 1.2 (W3C Rec June 2023) is key for ensuring custom UI components are perceivable and operable via screen readers. *Download note:* Provided as HTML spec; a summarized reference of ARIA roles/states (e.g. cheat sheet PDF) can be included.

Title / Source	Subject Focus	Type	Format	Summary & Relevance
Inclusive Design Principles (Microsoft Inclusive Design)	Inclusive design methodology (diverse users)	Guideline / Toolkit	PDF guides (available)	Microsoft's Inclusive Design practice provides principles and activities to design for a broad spectrum of human abilities and contexts. *"Inclusive Design is a methodology… that enables and draws on the full range of human diversity… including and learning from people with a range of perspectives."* [17] Its core principles are: **Recognize exclusion**, **Learn from diversity**, and **Solve for one, extend to many** [18] [19]. These encourage designing products that work for people with permanent, temporary, or situational disabilities, which leads to better experiences for everyone. *Download note:* Microsoft offers an Inclusive Design Toolkit (PDF manuals, activities) that can be directly used in the dataset.

Cognitive and Behavioral Psychology Principles for UX

Title / Concept	Subject Focus	Type	Format	Summary & Relevance
Hick's Law (Hick–Hyman Law)	Choice overload & decision time	UX principle (psychology)	Explanation (article/ cheat-sheet)	States that the time to make a decision increases as the number and complexity of choices increases [20]. In practice, every additional menu item, button, or option slows users down and may lead to choice overload. *Design implication:* simplify menus, limit options per screen, use progressive disclosure to keep choices manageable [21]. This principle helps UX auditors flag overly complex interfaces that could benefit from simplification. *Download note:* Commonly described in UX "laws" articles; can be provided as a concise PDF summary with examples.
Fitts's Law	Target size & distance (interaction speed)	UX principle (human motor performance)	Explanation (article/ cheat-sheet)	Describes that *"the time to acquire a target is a function of the distance to and size of the target."* [22] In UI terms, larger and closer interactive elements (buttons, links) are faster and easier to click or tap [23]. Small or distant targets slow users and increase error rates. *Design implication:* make important buttons big and near expected cursor/touch locations (e.g. corners for quick mouse access, reachable areas on touchscreens). This is a foundational law for evaluating touch target sizing and layout spacing in UX. *Download note:* Content available in HCI textbooks and UX "laws" websites; summary with equations and design tips can be compiled.

Title / Concept	Subject Focus	Type	Format	Summary & Relevance
Gestalt Principles of Perception	Visual grouping & pattern recognition	UX principles (visual psychology)	Explanation (article/ guide)	A set of principles (originating from Gestalt psychology) explaining how people naturally organize visual elements into groups or unified wholes. *"Gestalt principles guide how people visually perceive the world — including digital interfaces… they explain how people decide whether individual elements are part of the same group and thus related."* [24] Key Gestalt laws for UX include **proximity** (closer items perceived as group), **similarity** (similar-looking items seen as related [25]), **common region** (bounded area groups content) [24], **continuity**, **figure/ ground**, etc. Designers use these to structure interfaces clearly (e.g. form fields with boxed sections, consistent icons for similar functions). *Download note:* Many UX resources cover Gestalt laws; a compiled Markdown with illustrations of each principle can be provided.

Title / Concept	Subject Focus	Type	Format	Summary & Relevance
Affordances & Signifiers (Don Norman)	Perceived usability cues	Design psychology concept	Book excerpt / UX article	Affordances are *"the perceived and actual properties of a thing that determine how it could possibly be used… [They] provide strong clues to the operations of things. Plates are for pushing. Knobs are for turning…"* [26] In UX, an element's design should suggest its function (e.g. a button looks pressable). *Signifiers* (Norman's term) are the cues that indicate how to interact (like a underlined text hinting it's clickable). Auditing a UI involves checking that interactive elements have proper affordances (e.g. links visibly clickable, sliders draggable). Poor affordances cause user confusion (e.g. non-clickable elements that look clickable and vice versa). *Download note:* Originally from Norman's *The Design of Everyday Things*; a summary of affordances and signifiers in PDF form can be included.

Title / Concept	Subject Focus	Type	Format	Summary & Relevance
Attention Economy (Focus & Cognitive Load)	User attention as a limited resource	Concept (UX psychology)	Article / research insight	The "attention economy" frames user attention as a scarce commodity in the digital age. *"Digital products are competing for users' limited attention. The modern economy increasingly revolves around the human attention span and how products capture that attention."* [27] For UX, this means interfaces must be designed to respect users' limited focus: grab attention for key tasks but avoid overwhelming distraction. Concepts like **cognitive load** and **information overload** tie in – interfaces should be streamlined to prevent mental fatigue. UX practitioners use this knowledge to prioritize content, employ visual hierarchy, and create engaging, not overbearing, experiences. *Download note:* Covered in UX articles and psychology literature (e.g. NN/g); a concise write-up (with Herbert Simon's quote "a wealth of information creates a poverty of attention") can be provided.

Emerging Best Practices for AI/LLM Interface Design

Title / Source	Subject Focus	Type	Format	Summary & Relevance
Google People + AI Guidebook	Human-centered AI product design	Guideline (industry best-practice)	Website (HTML guide; PDF available)	A comprehensive guide by Google's PAIR team for designing user-centric AI experiences. *"This Guidebook will help you build human-centered AI products… avoid common mistakes, design excellent experiences, and focus on people as you build AI-driven applications."* [28] It spans 6 chapters (User needs & success criteria, Data collection & evaluation, Mental models, Explainability & Trust, Feedback & Control, Errors & Graceful failure [29]). For example, it advises how to set proper user expectations, provide meaningful explanations for AI outputs, and allow user feedback loops to improve AI behavior. **Relevance:** Equips the AI model with proven design patterns to critique AI features (e.g. whether an app properly informs users of AI limitations or builds trust). *Download note:* Online resource; a compiled PDF of all chapters (available via Google or community) or a markdown summary will be provided for training.

Title / Source	Subject Focus	Type	Format	Summary & Relevance
Microsoft's Guidelines for Human–AI Interaction	Best practices for interactive AI behavior	Guideline (research-based)	PDF (CHI 2019 paper)	A set of 18 evidence-based guidelines from Microsoft Research for designing AI systems that interact appropriately with users [30]. These guidelines cover how AI should behave *"upon initial interaction, during regular interaction, when they're inevitably wrong, and over time."* [31] For example, AI should **Make clear what it can do** and **what it *cannot* do** upfront, **Mitigate errors gracefully** with explanations or undo, **Adapt and learn from user behavior over time** while updating users on changes, etc. **Relevance:** These give the AI auditor model criteria to judge if an AI feature follows UX best practices (e.g. does a smart assistant provide timely feedback and allow correction when wrong?). *Download note:* Available as an academic paper (PDF) and summarized on Microsoft's site – the PDF can be directly included in the dataset.

Title / Source	Subject Focus	Type	Format	Summary & Relevance
Prompt Controls in GenAI Chatbots (NN/g)	Designing UI affordances for text prompts	UX article (design research)	Web article (HTML)	Research by Nielsen Norman Group on UI elements that assist users in crafting and adjusting prompts in generative AI interfaces. It identifies **prompt controls** – *"UI components that surround the input field in an AI-chatbot interface… to expedite and supplement text input."* [32] Examples include suggestion buttons, tooltips, parameter sliders, and menus that help users discover chatbot capabilities and formulate queries. Following these best practices *"can increase the discoverability of genAI chatbots' features, offer inspiration, and minimize manual user input"* [33], ultimately helping overcome the "blank slate" problem for new users. **Relevance:** In training, this teaches the AI model patterns for good prompt UX (like providing sample questions, sliders for temperature, etc.) when evaluating AI-driven products. *Download note:* High-level findings are in an HTML article (Aug 2024); a summary Markdown or PDF can be created for inclusion.

Title / Source	Subject Focus	Type	Format	Summary & Relevance
Conversational UI Guidelines (Chat UX – NN/g)	Best practices for chat-based interfaces	Guidelines (industry article)	Web article (HTML)	A set of 20 UX guidelines for conversational interfaces (from live chats to chatbots) focusing on usability and user satisfaction in chat interactions. Key recommendations include making chat entry points obvious (e.g. *"Place a link to Chat on the Contact Us page"* rather than hiding it) [34], managing the chat flow (minimize wait times, show typing indicators, allow file attachments), and transparency (e.g. *"Be upfront about using a bot"* if the agent is automated) [35]. The guidelines also cover tone and efficiency (agents should skip pleasantries like "How are you?" and get to the point [35]). **Relevance:** These practices train the AI to critique conversational UIs – ensuring the model can spot common chatbot UX issues (like hard-to-find chat buttons or unhelpful canned responses) and suggest improvements. *Download note:* Presented as a Nielsen Norman Group article; can be distilled into a PDF checklist or summary for the training dataset.

Each of the above items contributes authoritative knowledge to help an AI model evaluate and improve UX. By incorporating design heuristics, accessibility standards, cognitive principles, and the latest AI-specific UX guidance, the model can not only identify general UI/UX problems but also categorize them (usability heuristic, accessibility issue, cognitive overload, AI interaction flaw, etc.) and prioritize solutions based on proven best practices. **Sources:** All references are cited in the format 【†】 above, and full documents or clean summaries (PDF/Markdown) of the web-based content will be prepared to ensure the dataset is self-contained and comprehensive.

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[1] [2] 10 Usability Heuristics for User Interface Design - NN/g
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[3] Ben Shneiderman
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9 GitHub - carbon-design-system/carbon: A design system built by IBM
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10 Fluent UI - Microsoft Design System Overview: Features, Principles & Resources
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