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RADIANT UI/UX Patterns, Styles, and Behaviors

Design System Documentation

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Overview

This document tracks all UI/UX patterns, styles, and behaviors used in RADIANT and Think Tank applications. It is **MANDATORY** to:

1. Review this document BEFORE making UI changes

2. Update this document when patterns are added, modified, or removed

Policy: See [./windsurf/workflows/ui-ux-patterns-policy.md](#)

Design System Foundation

Source References

Resource	URL	Usage
shadcn/ui	https://ui.shadcn.com	Base component library
Radix UI	https://www.radix-ui.com	Accessible primitives
Tailwind CSS	https://tailwindcss.com	Utility-first styling
Material Design 3	https://m3.material.io	Color theory, spacing
Atlassian Design System	https://atlassian.design	Enterprise patterns
Shopify Polaris	https://polaris.shopify.com	Dashboard patterns
GitHub Primer	https://primer.style	Developer-focused UI
Framer Motion	https://www.framer.com	Animation library

Category 1: Design Tokens

Color System

Source: shadcn/ui theming system with HSL CSS variables

Token	Light Mode	Dark Mode	Usage
--background	0 0% 100%	222.2 84% 4.9%	Page background
--foreground	222.2 84% 4.9%	210 40% 98%	Primary text
--primary	262 83% 58%	262 83% 68%	Brand purple
--secondary	210 40% 96.1%	217.2 32.6% 17.5%	Secondary elements
--muted	210 40% 96.1%	217.2 32.6% 17.5%	Muted backgrounds
--accent	210 40% 96.1%	217.2 32.6% 17.5%	Accent highlights
--destructive	0 84.2% 60.2%	0 62.8% 30.6%	Error/danger states
--border	214.3 31.8% 91.4%	217.2 32.6% 17.5%	Border color
--ring	262 83% 58%	262 83% 68%	Focus ring

Files: - apps/admin-dashboard/app/globals.css - apps/thinktank-admin/app/globals.css

Thermal State Colors

Source: Custom RADIANT design for infrastructure status

State	Color	Hex	Usage
off	Gray	#6b7280	Disabled/inactive
cold	Blue	#3b82f6	Cold/standby
warm	Amber	#f59e0b	Warming up
hot	Red	#ef4444	Active/hot
automatic	Purple	#8b5cf6	Auto-managed

Files: apps/admin-dashboard/tailwind.config.ts

Service Status Colors

Status	Color	Hex	Usage
running	Green	#22c55e	Service healthy
degraded	Amber	#f59e0b	Partial issues
disabled	Gray	#6b7280	Intentionally off
offline	Red	#ef4444	Unavailable

Files: apps/admin-dashboard/tailwind.config.ts

Typography

Token	Value	Usage
font-sans	Inter, system-ui, sans-serif	Body text
font-mono	JetBrains Mono, monospace	Code, technical

Source: Inter from Google Fonts, JetBrains Mono for code

Category 2: Component Patterns

Button Variants

Source: shadcn/ui Button component with class-variance-authority

Variant	Style	Usage
default	Purple background, white text	Primary actions
destructive	Red background	Delete, dangerous actions
outline	Border only	Secondary actions
secondary	Gray background	Tertiary actions
ghost	No background until hover	Subtle actions

Variant	Style	Usage
link	Text with underline	Navigation links

Size	Height	Usage
default	h-10 (40px)	Standard buttons
sm	h-9 (36px)	Compact areas
lg	h-11 (44px)	Prominent CTAs
icon	h-10 w-10	Icon-only buttons

Files: apps/admin-dashboard/components/ui/button.tsx

Card Component

Source: shadcn/ui Card component with Glass variant (v5.52.2)

Part	Class	Purpose
Card	rounded-xl border bg-card shadow-sm	Container
Card variant="glass"	bg-white/[0.04] backdrop-blur-lg border-white/[0.08]	Glass effect
CardHeader	flex flex-col space-y-1.5 p-6	Title area
CardTitle	text-2xl font-semibold	Main heading
CardDescription	text-sm text-muted-foreground	Subtitle

GlassCard Component (v5.52.2)

Source: Custom RADIANT glassmorphism component

Part	Class	Purpose
GlassCard	bg-white/[0.04] backdrop-blur-lg border-white/[0.08] rounded-xl	Glass container
GlassPanel	bg-white/[0.03] backdrop-blur-lg border-white/[0.06] rounded-2xl	Glass panel
GlassOverlay	fixed inset-0 bg-black/40 backdrop-blur-xl z-50	Modal overlay

Variants:

Variant	Effect	Use Case
default	Subtle glass	Standard cards
elevated	Stronger shadow	Floating panels
inset	Inner shadow	Embedded content
glow	Ambient color glow	Featured content

Intensity:

Intensity	Background	Blur
light	bg-white/[0.02]	backdrop-blur-md
medium	bg-white/[0.04]	backdrop-blur-lg
strong	bg-white/[0.08]	backdrop-blur-xl

Glow Colors:

Color	Shadow
violet	shadow-[0_0_30px_rgba(139,92,246,0.15)]
fuchsia	shadow-[0_0_30px_rgba(217,70,239,0.15)]
cyan	shadow-[0_0_30px_rgba(34,211,238,0.15)]
emerald	shadow-[0_0_30px_rgba(52,211,153,0.15)]
blue	shadow-[0_0_30px_rgba(59,130,246,0.15)]

Files: - apps/thinktank/components/ui/glass-card.tsx - apps/admin-dashboard/components/ui/glass-card.tsx
- apps/thinktank-admin/components/ui/glass-card.tsx - apps/curator/components/ui/glass-card.tsx

Stat Card Component

Source: Custom RADIANT component for metrics display

Variant	Icon Background	Usage
default	bg-slate-100	Neutral metrics
primary	bg-blue-100	Key metrics
success	bg-emerald-100	Positive metrics
warning	bg-amber-100	Attention needed
danger	bg-red-100	Critical metrics

Files: - apps/admin-dashboard/components/ui/stat-card.tsx - apps/admin-dashboard/lib/design-tokens

Dialog/Modal Pattern

Source: Radix UI Dialog primitive + shadcn/ui styling

Part	Purpose
DialogTrigger	Button to open
DialogContent	Modal container with overlay
DialogHeader	Title and description area
DialogFooter	Action buttons
DialogClose	Close button

Behavior: - Focus trap inside modal - Escape key closes - Click outside closes - Scroll lock on body

Files: apps/admin-dashboard/components/ui/dialog.tsx

Toast Notifications

Source: Sonner toast library

Type	Icon	Duration	Usage
success	Check	4s	Successful actions
error	X	6s	Errors
warning	Alert	5s	Warnings
info	Info	4s	Information

Files: apps/admin-dashboard/components/ui/toaster.tsx

Category 3: Layout Patterns

Grid Layouts

Source: Custom RADIANT responsive grid system

Pattern	Classes	Breakpoints
stats2	grid-cols-1 sm:grid-cols-2	1 → 2 columns
stats3	grid-cols-1 sm:grid-cols-2 lg:grid-cols-3	1 → 2 → 3
stats4	grid-cols-1 sm:grid-cols-2 lg:grid-cols-4	1 → 2 → 4

Pattern	Classes	Breakpoints
stats5	grid-cols-2 sm:grid-cols-3 lg:grid-cols-5	2 → 3 → 5
cards2	grid-cols-1 md:grid-cols-2 gap-6	1 → 2
cards3	grid-cols-1 md:grid-cols-2 lg:grid-cols-3 gap-6	1 → 2 → 3

Files: apps/admin-dashboard/lib/design-tokens.ts

Sidebar Layout

Source: shadcn/ui Sidebar component pattern

State	Width	Behavior
Expanded	256px	Full navigation
Collapsed	64px	Icons only
Mobile	Full overlay	Sheet pattern

Files: apps/admin-dashboard/components/layout/

Container Pattern

Source: Tailwind CSS container with custom config

```
container: {
  center: true,
  padding: '2rem',
  screens: { '2xl': '1400px' }
}
```

Files: apps/admin-dashboard/tailwind.config.ts

Resizable Panels

Source: react-resizable-panses library

Pattern	Usage
ResizablePanelGroup	Container for panels
ResizablePanel	Individual panel
ResizableHandle	Drag handle between panels

Files: apps/admin-dashboard/components/ui/resizable.tsx

Category 4: Animation Patterns

Framer Motion Animations

Source: Framer Motion library

Animation	Properties	Usage
Fade In	<code>opacity: 0 → 1</code>	Element appearance
Slide In	<code>translateX/Y + opacity</code>	Panel transitions
Scale	<code>scale: 0.95 → 1</code>	Modal appearance
Stagger	<code>staggerChildren: 0.05</code>	List items

Files: - apps/admin-dashboard/components/thinktank/magic-carpet/ - apps/admin-dashboard/components

CSS Animations (Tailwind)

Animation	Keyframes	Duration	Usage
<code>accordion-down</code>	Height 0 → auto	0.2s	Accordion expand
<code>accordion-up</code>	Height auto → 0	0.2s	Accordion collapse
<code>fade-in</code>	Opacity 0 → 1	0.2s	Element appearance
<code>slide-in-from-right</code>	TranslateX 100% → 0	0.3s	Sheet/drawer
<code>pulse-slow</code>	Opacity 1 → 0.5 → 1	2s loop	Loading states
<code>shimmer</code>	Background position	2s loop	Skeleton loading

Files: apps/admin-dashboard/tailwind.config.ts

Category 5: Interaction Behaviors

Focus Management

Source: Radix UI accessibility patterns + WCAG 2.1

Pattern	Behavior
Focus Ring	<code>ring-2 ring-ring ring-offset-2</code> on focus
Focus Trap	Tab cycles within modals/dialogs
Focus Restore	Returns focus when modal closes
Skip Links	Hidden link to main content

Files: apps/admin-dashboard/app/globals.css (.focus-ring class)

Keyboard Navigation

Source: Radix UI primitives

Component	Keys
Dialog	Escape to close
Dropdown	Arrow keys, Enter, Escape
Tabs	Arrow keys to switch
Accordion	Space/Enter to toggle
Select	Arrow keys, Enter, Type to search

Loading States

Pattern	Visual	Usage
Skeleton	Gray animated placeholder	Content loading
Spinner	Rotating icon	Action in progress
Progress	Bar with percentage	File upload, long tasks
Shimmer	Gradient animation	Card/list loading

Files: - apps/admin-dashboard/components/ui/skeleton.tsx - apps/admin-dashboard/components/ui/progress.tsx

Empty States

Source: Custom RADIANT pattern

Element	Purpose
Icon	Visual indicator
Title	What's empty
Description	Why/what to do
Action	CTA button

Files: apps/admin-dashboard/components/ui/empty-state.tsx

Category 6: Form Patterns

Form Layout

Source: react-hook-form + shadcn/ui Form component

Pattern	Usage
Stacked	Label above input, full width
Inline	Label beside input
Grid	Multiple fields in columns

Validation

Source: Zod schema validation + @hookform/resolvers

State	Visual
Default	Gray border
Focus	Ring highlight
Error	Red border + error message
Success	Green border (optional)
Disabled	Reduced opacity

Input Types

Component	Radix Primitive	Usage
Input	Native	Text, email, password
Textarea	Native	Multi-line text
Select	@radix-ui/react-select	Dropdown selection
Checkbox	@radix-ui/react-checkbox	Boolean toggle
Switch	@radix-ui/react-switch	On/off toggle
Slider	@radix-ui/react-slider	Range selection

Category 7: Data Display Patterns

Tables

Source: shadcn/ui Table component

Part	Class	Purpose
Table	Full width container	Wrapper
TableHeader	Sticky header	Column names
TableBody	Scrollable	Data rows
TableRow	Hover state	Individual row
TableCell	Padding, alignment	Cell content

Files: apps/admin-dashboard/components/ui/table.tsx

Charts

Source: Recharts library

Chart Type	Usage
LineChart	Trends over time
BarChart	Comparisons

Chart Type	Usage
AreaChart	Volume/quantity
PieChart	Proportions

Chart Colors (CSS variables): - --chart-1: Primary (purple) - --chart-2: Teal - --chart-3: Dark blue - --chart-4: Yellow - --chart-5: Orange

Interactive Report Charts (v5.42.0):

Property	Value	Usage
CHART_COLORS	8-color palette	['#3b82f6', '#10b981', '#f59e0b', '#ef4444', '#8b5cf6', '#ec4899', '#06b6d4', '#84cc16']
Tooltip formatter	K/M suffixes	Auto-format large numbers
ResponsiveContainer	100% width	Adapts to panel size
Cell coloring	Index-based	Each bar/pie slice unique color

Files: apps/admin-dashboard/app/(dashboard)/reports/page.tsx

Smart Insights Panel (v5.42.0)

Source: Custom RADIANT component for AI-powered report insights

Insight Type	Border Color	Icon	Background
trend	Blue (border-l-blue-500)	TrendingUp	bg-blue-50/50
anomaly	Amber (border-l-amber-500)	AlertTriangle	bg-amber-50/50
achievement	Green (border-l-green-500)	Target	bg-green-50/50
recommendation	Purple (border-l-purple-500)	Zap	bg-purple-50/50
warning	Red (border-l-red-500)	AlertCircle	bg-red-50/50

Severity Badge Colors: | Severity | Border | Text | |-----|-----|-----| | low | border-green-500 | text-green-600 | | medium | border-amber-500 | text-amber-600 | | high | border-red-500 | text-red-600 |

Layout: Card with border-1-4, flex row with insight details left and confidence score right.

Files: apps/admin-dashboard/app/(dashboard)/reports/page.tsx, apps/thinktank-admin/app/(dashboard)

Brand Kit Panel (v5.42.0)

Source: Custom RADIANT component for report branding customization

Element	Component	Behavior
Logo Upload	<input type="file"> hidden + dashed border dropzone	FileReader → data URL
Company Name	Input	Bound to <code>brandKit.companyName</code>
Tagline	Input	Bound to <code>brandKit.tagline</code>
Color Pickers	<input type="color">	Native HTML5 color picker
Font Selector	Select	Header and body font dropdowns
Quick Presets	Color circle buttons	One-click theme colors
Preview Card	Card with inline styles	Live preview of branding

Default Brand Kit:

```
{
  logoUrl: null,
  primaryColor: '#3b82f6',
  secondaryColor: '#64748b',
  accentColor: '#10b981',
  fontFamily: 'Inter, system-ui, sans-serif',
  headerFont: 'Inter, system-ui, sans-serif',
  companyName: 'RADIANT',
  tagline: 'AI-Powered Insights',
}
```

Files: apps/admin-dashboard/app/(dashboard)/reports/page.tsx, apps/thinktank-admin/app/(dashboard)

Badges

Source: shadcn/ui Badge + custom variants

Variant	Colors	Usage
default	Primary colors	Standard
secondary	Gray	Less emphasis
destructive	Red	Errors, warnings
outline	Border only	Subtle

Tier Badges (custom): | Tier | Colors | |——|——| | `free` | Slate | | `pro` | Blue | | `team` | Purple | | `enterprise` | Amber |

Status Badges (custom): | Status | Colors | |——|——| | `active` | Emerald | | `inactive` | Slate | | `suspended` | Red | | `archived` | Amber |

Files: - apps/admin-dashboard/components/ui/badge.tsx - apps/admin-dashboard/lib/design-tokens.ts

Category 8: Navigation Patterns

Tabs

Source: Radix UI Tabs primitive

Pattern	Usage
Horizontal	Page sections
Vertical	Settings sidebar
Contained	Card-style tabs

Files: apps/admin-dashboard/components/ui/tabs.tsx

Breadcrumbs

Pattern	Format
Standard	Home / Section / Page
Truncated	Home / ... / Page

Dropdown Menu

Source: Radix UI Dropdown Menu primitive

Part	Purpose
DropdownMenuTrigger	Button to open
DropdownMenuContent	Menu container
DropdownMenuItem	Clickable item
DropdownMenuSeparator	Visual divider
DropdownMenuSub	Nested submenu

Files: - apps/admin-dashboard/components/ui/dropdown-menu.tsx - apps/thinktank/components/ui/dropdown-menu.tsx (v5.52.16 - glassmorphism variant)

Think Tank Variant (v5.52.16): | Property | Value | |-----|-----| | Background |
bg-slate-900/95 backdrop-blur-xl | | Border | border-white/[0.08] | | Item hover |
focus:bg-white/[0.08] || Text color | text-slate-300 (hover: text-white) || Border radius |
rounded-xl || Shadow | shadow-xl shadow-black/20 |

Category 9: Think Tank Consumer Chat Patterns

Source: Custom Think Tank design with shadcn/ui and Framer Motion

Advanced Mode Toggle

Toggle between Auto and Advanced modes with animated transition.

State	Appearance
Auto Mode	Sparkles icon, subtle styling
Advanced Mode	Zap icon, violet glow background

Keyboard Shortcut: +Shift+A

Files: apps/thinktank/components/chat/AdvancedModeToggle.tsx

Message Bubble

Enhanced chat message component with metadata support.

Feature	Auto Mode	Advanced Mode
Avatar		
Content		
Streaming cursor		
Model used		
Token count		
Latency		
Cost estimate		
Rating buttons		

Files: apps/thinktank/components/chat/MessageBubble.tsx

Chat Input

Smart auto-resizing textarea with model selector integration.

Feature	Description
Auto-resize	Grows up to 200px
Attachment button	File upload
Voice button	Voice input
Model selector	Shows in Advanced Mode
Send button	Gradient styling when active

Files: apps/thinktank/components/chat/ChatInput.tsx

Sidebar with Date Grouping

Conversation list grouped by time period.

Group	Conversations
Today	Conversations from today
Yesterday	Previous day
Last 7 Days	Past week
Older	Everything else

Files: apps/thinktank/components/chat/Sidebar.tsx

Brain Plan Viewer

Collapsible execution plan display for Advanced Mode.

Element	Purpose
Mode badge	Shows orchestration mode
Domain badge	Detected knowledge domain
Progress bar	Step completion percentage
Step list	Individual execution steps
Model selection	Selected model with reason

Files: apps/thinktank/components/chat/BrainPlanViewer.tsx

Model Selector Dialog

Full-featured model picker with search and categories.

Feature	Description
Search	Filter by name/description
Categories	Filter by model category
Model cards	Shows capabilities, cost, latency
Auto option	“Let Cato decide” option

Files: apps/thinktank/components/chat/ModelSelector.tsx

Language Selector

Component for selecting preferred UI language from API-provided list.

Variant	Description
dropdown	Compact dropdown with current language
list	Full list for settings page

Feature	Description
Native names	Shows language in its own script
RTL support	Respects text direction
API-driven	Languages loaded from Radiant API
Persisted	Saves to localStorage

Files: apps/thinktank/components/ui/language-selector.tsx

Category 10: Localization Patterns

Source: Custom Think Tank design

Translation Hook Pattern

React hook pattern for accessing translations.

```
const { t } = useTranslation();
return <span>{t(T.common.save)}</span>;
```

Export	Purpose
useTranslation	Get t function only
useLanguage	Get language + setter
useLocalization	Full context access
T	Translation key constants

Files: apps/thinktank/lib/i18n/localization-context.tsx

Translation Key Pattern

Centralized key constants for type safety.

Category	Prefix	Example Key
Common	thinktank.common.	T.common.save
Chat	thinktank.chat.	T.chat.send
Errors	thinktank.errors.	T.errors.network

Files: - apps/thinktank/lib/i18n/translation-keys.ts - apps/thinktank/lib/i18n/default-translation

Parameter Interpolation Pattern

Support for dynamic values in translations.

```
// Translation: "Delete {{count}} items"
t(T.history.deleteSelectedConfirm, { count: 5 })
// Output: "Delete 5 items"
```

Files: apps/thinktank/lib/i18n/localization-context.tsx

Category 11: Magic Carpet Patterns (Think Tank Admin)

Source: Custom RADIANT/Think Tank design

Spatial Glass Card

Glassmorphism effect with backdrop blur.

Property	Value
Background	bg-white/80 dark:bg-slate-900/80
Backdrop	backdrop-blur-xl
Border	border border-white/20

Files: apps/admin-dashboard/components/thinktank/magic-carpet/spatial-glass-card.tsx

AI Presence Indicator

Animated indicator showing AI activity state.

State	Animation
Idle	Subtle pulse
Thinking	Faster pulse
Responding	Wave effect

Files: apps/admin-dashboard/components/thinktank/magic-carpet/ai-presence-indicator.tsx

Reality Scrubber Timeline

Time-travel UI for conversation history.

Element	Purpose
Timeline	Visual history
Scrubber	Drag to point in time
Markers	Key moments
Preview	Hover state preview

Files: apps/admin-dashboard/components/thinktank/magic-carpet/reality-scrubber-timeline.tsx

Quantum Split View

Parallel conversation comparison view.

Feature	Purpose
Split panes	Side-by-side views
Sync scroll	Optional linked scrolling
Merge	Combine best parts

Files: apps/admin-dashboard/components/thinktank/magic-carpet/quantum-split-view.tsx

Pre-Cognition Suggestions

AI-powered predictive suggestions.

Animation	Timing
Fade in	0.2s
Slide up	0.3s
Stagger	0.05s between items

Files: apps/admin-dashboard/components/thinktank/magic-carpet/pre-cognition-suggestions.tsx

Pattern Modification History

Date	Pattern	Change	Reason	Modified By
2024-01-01	Initial	Document created	Baseline	System
2026-01-19	Advanced Mode Toggle	New component	Think Tank Auto/Advanced mode switching	Cascade
2026-01-19	Message Bubble	Enhanced	Added metadata display, rating actions, streaming cursor	Cascade
2026-01-19	Chat Input	Enhanced	Added model selector integration, auto-resize	Cascade
2026-01-19	Sidebar	New component	Conversation list with search, date grouping	Cascade
2026-01-19	Brain Plan Viewer	New component	Displays AGI execution plan with step progress	Cascade

Date	Pattern	Change	Reason	Modified By
2026-01-19	Model Selector Dialog	New component	Full model picker with categories and search	Cascade
2026-01-19	Language Selector	New component	Dropdown/list language picker with native names	Cascade
2026-01-19	Localization System	New pattern	useTranslation hook, T keys, API-based i18n	Cascade
2026-01-19	GlassCard	New component	Glassmorphism card with blur, glow, hover effects	Cascade
2026-01-19	GlassPanel	New component	Frosted glass container panel	Cascade
2026-01-19	AuroraBackground	New component	Animated aurora gradient effect for backgrounds	Cascade
2026-01-19	InteractiveTimeline	New component	Vertical timeline with grouped history navigation	Cascade
2026-01-19	HorizontalTimeline	New component	Horizontal scrollable timeline preview	Cascade
2026-01-19	ViewRouter	New component	Polymorphic UI morphing with Sniper/War Room modes	Cascade
2026-01-19	ModernChatInterface	New component	2026+ chat UI with glassmorphism, advanced mode	Cascade
2026-01-19	Design Tokens	New system	Complete design token system for colors, spacing, animation	Cascade

Date	Pattern	Change	Reason	Modified By
2026-01-23	Responsive Grids	Enforced	All stats grids must use <code>md:grid-cols-2</code> <code>lg:grid-cols-4</code> pattern	Cascade
2026-01-23	Toast Notifications	Enforced	All mutation actions must show toast feedback	Cascade
2026-01-23	useQuery Typing	Enforced	All useQuery hooks must use generic typing <code>useQuery<T>()</code>	Cascade
2026-01-23	Magic Carpet Interactions	Implemented	Bookmark, branch, prediction handlers with toast feedback	Cascade
2026-01-23	Collaborative Session	Implemented	Invite, permission, remove participant handlers with state	Cascade
2026-01-23	Reply/Edit Actions	Implemented	Reply populates input with @mention, edit populates content	Cascade
2026-01-23	Living Parchment	Implemented	War Room advisor analysis, Council session conclusion via API	Cascade
2026-01-23	Geographic Map	Implemented	Region click handler with toast and selection state	Cascade
2026-01-23	Report Edit	Implemented	Edit report handler opens dialog with report configuration	Cascade

Date	Pattern	Change	Reason	Modified By
2026-01-23	ViewRouter State	Implemented	View/mode state tracking for polymorphic UI transitions	Cascade
2026-01-24	Activity Heatmap	New component	GitHub-style yearly activity visualization	Cascade
2026-01-24	Enhanced Activity Heatmap	New component	AI insights, breathing animation, streaks, sound	Cascade
2026-01-24	Generic Heatmap	New component	2D grid with 5 color schemes	Cascade
2026-01-24	Latency Heatmap	New component	Geographic AWS region latency map	Cascade
2026-01-24	CBF Violations Heatmap	New component	Content boundary rule violation analytics	Cascade

Category 13: Heatmap Components (v5.52.1)

Source: Custom RADIANT visualization components for data density display

Activity Heatmap

GitHub-style contribution graph for user activity tracking.

Property	Value
Location	apps/thinktank/components/ui/activity-heatmap.tsx
Color Schemes	violet, green, blue
Layout	52 weeks × 7 days grid
Animation	Framer Motion staggered fade-in

Usage:

```
<ActivityHeatmap
  data={[{ date: '2026-01-24', count: 5 }]}
  year={2026}
  colorScheme="violet"
/>
```

Enhanced Activity Heatmap

Industry-leading activity visualization with AI features.

Feature	Description
Breathing Animation	Cells pulse based on activity intensity (0.5s cycle)
AI Insights	Pattern detection, anomaly alerts, trend predictions
Streak Tracking	Current/longest streak badges with icons
Sound Feedback	Web Audio API pitch varies with intensity
Accessibility Mode	Full narrative summary for screen readers
Predictions	Future cells with dashed borders

Props: | Prop | Type | Default | Description || ——|——|——|——-| | data | ActivityDay[] | required | Activity data || year | number | current year | Display year || colorScheme | 'violet' \| 'green' \| 'blue' \| 'fire' \| 'ocean' | 'violet' | Color theme || enableBreathing | boolean | true | Enable pulse animation || enableSound | boolean | false | Enable audio feedback || enableAIInsights | boolean | true | Show AI analysis || showStreaks | boolean | true | Highlight streak days |

Files: apps/thinktank/components/ui/enhanced-activity-heatmap.tsx

Generic Heatmap

2D grid visualization for correlation matrices and patterns.

Property	Value
Location	apps/admin-dashboard/components/charts/heatmap.tsx
Color Schemes	blue, red, green, purple, diverging
Cell Sizes	sm (32px), md (48px), lg (64px)
Animation	Framer Motion staggered scale-in

Usage:

```
<Heatmap
  data={[{ row: 'Model A', col: 'Mon', value: 42 }]}
  rows={['Model A', 'Model B']}
  cols={['Mon', 'Tue', 'Wed']}
  colorScheme="blue"
  showValues={true}
  cellSize="md"
/>
```

Files: apps/admin-dashboard/components/charts/heatmap.tsx

Latency Heatmap

Geographic visualization of AWS region latencies.

Property	Value
Location	<code>apps/admin-dashboard/components/geographic/latency-heatmap.tsx</code>
Regions	17 AWS regions with SVG positioning
Thresholds	<50ms (green) → >500ms (red)
Animation	Pulse for critical regions

Latency Colors: | Threshold | Color | Label | |-----|-----|-----| | <50ms | #22c55e | Excellent
 || <100ms | #84cc16 | Good | | <200ms | #eab308 | Fair | | <500ms | #f97316 | Slow | | >500ms
 | #ef4444 | Critical |

Files: `apps/admin-dashboard/components/geographic/latency-heatmap.tsx`

CBF Violations Heatmap

Content Boundary Framework rule violation analytics.

Property	Value
Location	<code>apps/admin-dashboard/components/analytics/cbf-violations-heatmap.tsx</code>
Grouping	By category (content_safety, pii_detection, etc.)
Severity	low (blue), medium (yellow), high (orange), critical (red)
Trends	Up/down arrows for violation direction

Category Icons: | Category | Icon | |-----|-----| | content_safety | | | data_privacy | | |
 pii_detection | | | harmful_content | | | jailbreak | | | prompt_injection | | |

Files: `apps/admin-dashboard/components/analytics/cbf-violations-heatmap.tsx`

Category 12: Think Tank Consumer App 2026+ Patterns

Source: Custom RADIANT/Think Tank design (2026+ UI/UX trends)

Glassmorphism Components

Modern glass effect components with depth and blur.

GlassCard

Property	Value
Background	<code>bg-white/[0.02-0.08]</code> based on intensity
Backdrop	<code>backdrop-blur-md/lg/xl</code> based on intensity
Border	<code>border-white/[0.06-0.12]</code>
Variants	<code>default, elevated, inset, glow</code>
Glow Colors	<code>violet, fuchsia, cyan, emerald</code>

```
<GlassCard variant="glow" glowColor="violet" hoverEffect>
  Content
</GlassCard>
```

Files: apps/thinktank/components/ui/glass-card.tsx

GlassPanel Container panel with frosted glass effect.

```
<GlassPanel blur="lg" className="p-4">
  Content
</GlassPanel>
```

Files: apps/thinktank/components/ui/glass-card.tsx

Aurora Background

Animated gradient background with floating color blobs.

Property	Options
Colors	violet, cyan, emerald, mixed
Intensity	subtle, medium, strong
Animate	true/false

Files: apps/thinktank/components/ui/aurora-background.tsx

Interactive Timeline

Grouped vertical timeline for history browsing.

Feature	Description
Grouping	Today, Yesterday, This Week, This Month, Older
Animation	Item entrance, hover scale, selection glow
Indicators	Favorite stars, mode badges, domain hints

Files: apps/thinktank/components/ui/timeline.tsx

Horizontal Timeline

Scrollable horizontal timeline preview.

Feature	Description
Scroll	Drag or button navigation
Cards	Compact conversation cards
Selection	Glow effect on selected

Files: apps/thinktank/components/ui/timeline.tsx

Polymorphic View Router

UI that morphs based on task and mode.

Mode	View	Description
Sniper	Fast execution	Single model, quick responses
War Room	Deep analysis	Multi-agent, full orchestration

View Type	Purpose
chat	Standard conversation
terminal	Command center
canvas	Infinite canvas/mindmap
dashboard	Analytics view
diff_editor	Verification split-screen
decision_cards	Human-in-the-loop

Files: `apps/thinktank/components/polymorphic/view-router.tsx`

Modern Chat Interface

2026+ chat UI with all advanced features.

Feature	Visibility
Mode badge	Always
Model selector	Advanced mode
Metadata display	Advanced mode
Voice input	Advanced mode
File attachments	Advanced mode
Rating actions	On hover

Files: `apps/thinktank/components/chat/ModernChatInterface.tsx`

Design Token System

Comprehensive design tokens for consistent styling.

Category	Examples
Colors	<code>glass.light, aurora.violet, glow.cyan</code>
Spacing	0.5 to 24 rem scale
Radius	<code>sm to full</code>
Shadows	<code>glass, glassHover, innerGlow</code>
Animation	<code>spring.gentle, easing.elastic</code>
Blur	<code>sm to glass (20px)</code>

Files: `apps/thinktank/lib/design-system/tokens.ts`

Modern Polish Components (2026+)

Super-modern UI polish components for consumer experience.

Page Transitions Smooth fade and slide transitions between pages.

```
import { PageTransition, StaggerContainer, StaggerItem, FloatingElement } from '@components/ui'

// Wrap page content
<PageTransition>
  <YourPageContent />
</PageTransition>

// Staggered list animation
<StaggerContainer>
  {items.map(item => (
    <StaggerItem key={item.id}>{item}</StaggerItem>
  )))
</StaggerContainer>

// Floating decoration
<FloatingElement delay={0.5}>
  <Icon />
</FloatingElement>
```

Files: apps/thinktank/components/ui/page-transition.tsx

Skeleton Loaders Shimmer effect skeleton components for loading states.

Component	Purpose
Skeleton	Basic shimmer element
SkeletonText	Multiple line text placeholder
SkeletonCard	Card with avatar and text
SkeletonMessage	Chat message placeholder
SkeletonChatList	Full chat loading state
SkeletonSidebar	Sidebar loading state
SkeletonGrid	Grid of cards
SkeletonStats	Stats row loading

```
import { Skeleton, SkeletonCard, SkeletonChatList } from '@components/ui';

<Skeleton className="h-4 w-full" />
<SkeletonCard />
<SkeletonChatList />
```

Files: apps/thinktank/components/ui/skeleton.tsx

Gradient Text & Glow Effects Animated text effects for modern styling.

Component	Purpose
GradientText	Animated gradient text (violet, cyan, rainbow, gold, emerald)
GlowText	Text with drop shadow glow
AnimatedNumber	Counter animation for stats
Typewriter	Typing effect for text

```
import { GradientText, GlowText, AnimatedNumber, Typewriter } from '@components/ui';

<GradientText gradient="violet" animate>Think Tank</GradientText>
<GlowText color="cyan">Glowing</GlowText>
<AnimatedNumber value={1234} suffix="+" />
<Typewriter text="Hello, I'm Cato..." />
```

Files: apps/thinktank/components/ui/gradient-text.tsx

Typing Indicators Animated indicators for AI thinking state.

Variant	Description
dots	Bouncing dots (default)
pulse	Single pulsing dot with text
wave	Audio waveform style
thinking	Full “Cato is thinking” panel

```
import { TypingIndicator, StreamingIndicator } from '@components/ui';

<TypingIndicator variant="thinking" />
<StreamingIndicator />
```

Files: apps/thinktank/components/ui/typing-indicator.tsx

Empty States Beautiful empty state illustrations with actions.

Type	Icon	Description
chat	MessageSquare	Start conversation prompt
history	History	No conversations yet
artifacts	Layers	No artifacts created
search	Search	No results found
rules	Star	No rules configured

```
import { EmptyState, WelcomeHero } from '@components/ui';

<EmptyState
  type="chat"
  action={{ label: "Start", onClick: handleStart }}>
/>
```

```
<WelcomeHero onStart={handleStart} />
```

Files: apps/thinktank/components/ui/empty-state.tsx

Modern Buttons Enhanced buttons with glow and micro-interactions.

Component	Variants
ModernButton	primary, secondary, ghost, glow, outline
IconButton	default, ghost, glow
PillButton	Active/inactive pill for filters

```
import { ModernButton, IconButton, PillButton } from '@/components/ui';

<ModernButton variant="glow" leftIcon={<Zap />}>
  Get Started
</ModernButton>

<IconButton icon={<Star />} label="Favorite" variant="glow" />

<PillButton isActive={selected}>Category</PillButton>
```

Files: apps/thinktank/components/ui/modern-button.tsx

Tailwind Animations Custom animations added to tailwind.config.js:

Animation	Class	Usage
Shimmer	animate-shimmer	Skeleton loading
Gradient X	animate-gradient-x	Animated gradients
Pulse Glow	animate-pulse-glow	Pulsing glow effect
Float	animate-float	Floating decoration
Spin Slow	animate-spin-slow	Slow rotation

Adding a New Pattern

When adding a new UI/UX pattern:

1. **Document the source** - Where did the pattern come from?
2. **Categorize it** - Which category does it belong to?
3. **Include all details** - Properties, variants, usage
4. **Add file references** - Where is it implemented?
5. **Update this document** - Add to appropriate section

Modifying a Pattern

When modifying an existing pattern:

1. **Review existing documentation** - Understand current pattern
 2. **Document the change** - Add to “Pattern Modification History”
 3. **Update pattern details** - Modify the relevant section
 4. **Test across apps** - Ensure consistency
-

Policy: This document is maintained under `/windsurf/workflows/ui-ux-patterns-policy.md`