**Product Requirements Document**

**Creative Design Platform (Creatopy Clone)**

**Version:** 1.0  
**Date:** January 2025  
**Status:** Draft

**1. Executive Summary**

**1.1 Purpose**

This document outlines the product requirements for developing a comprehensive creative design platform inspired by Creatopy's functionality. The platform will enable users to create, animate, and export professional marketing materials and advertisements through a web-based interface with AI-powered automation capabilities.

**1.2 Scope**

The platform will include all core design, animation, and export capabilities while explicitly excluding:

* Team collaboration features
* Billing and payment systems
* Multi-user workspace management
* Team permission controls

**1.3 Goals**

* Provide a professional-grade design tool accessible to users of all skill levels
* Enable rapid creation of multi-format advertising campaigns
* Integrate AI capabilities for automated design generation and optimization
* Support comprehensive export formats for all major advertising platforms

**2. Product Overview**

**2.1 Product Vision**

Create a unified creative automation platform that democratizes professional advertising design through intelligent workflows, AI assistance, and comprehensive format support.

**2.2 Key Value Propositions**

* **Multi-Size Workflow**: Create entire campaigns across all formats from a single design
* **AI-Powered Automation**: Leverage 11+ AI features for faster creative production
* **Dual-Editor System**: Professional tools for designers, simplified interface for marketers
* **Comprehensive Export**: Support for 100+ ad networks and platforms
* **No Installation Required**: Full browser-based functionality

**2.3 Target Market**

* Digital marketers and agencies
* Small to medium businesses
* E-commerce companies
* Content creators and social media managers
* Freelance designers

**3. User Personas**

**3.1 Primary Personas**

**Marketing Manager Maria**

* Creates 50+ ads monthly across multiple channels
* Needs quick turnaround and brand consistency
* Limited design skills but strong marketing knowledge
* Values automation and templates

**Designer David**

* Professional designer creating custom campaigns
* Requires advanced tools and precise control
* Values creative freedom and efficiency
* Needs high-quality export options

**Small Business Owner Sarah**

* Creates ads occasionally for promotions
* Very limited design experience
* Budget-conscious and time-constrained
* Needs simple, template-based solutions

**3.2 User Journey Map**

1. **Onboarding**: Quick tutorial and template selection
2. **Design Creation**: Choose format → Select template → Customize design
3. **Animation**: Apply preset animations or custom timeline editing
4. **Multi-Size Generation**: Auto-adapt to required formats
5. **Export**: Download in required formats with platform optimization

**4. Functional Requirements**

**4.1 Core Design Features**

**4.1.1 Canvas and Workspace**

* **Multi-canvas support**: Simultaneous editing of multiple ad sizes
* **Custom dimensions**: Support any canvas size up to 4000x4000px
* **Preset sizes**: 70+ standard ad formats pre-configured
* **Responsive preview**: Real-time preview across device types
* **Zoom controls**: 10% to 500% zoom with smooth scrolling
* **Grid and guides**: Smart snapping with customizable grid

**4.1.2 Design Tools**

* **Shape tools**: Rectangle, circle, triangle, polygon, star, line
* **Text editor**:
  + Rich text formatting (bold, italic, underline, strikethrough)
  + Font size range: 8px to 300px
  + Line height and letter spacing controls
  + Text alignment and distribution
  + Curved text capabilities
* **Drawing tools**: Pen tool for custom paths
* **Selection tools**: Direct selection, lasso, magic wand

**4.1.3 Layer Management**

* **Layer types**: Text, image, shape, video, group, mask
* **Layer operations**:
  + Lock/unlock
  + Show/hide
  + Duplicate
  + Delete
  + Rename
  + Reorder (drag and drop)
* **Layer properties**:
  + Opacity (0-100%)
  + Blend modes (15+ options)
  + Effects (shadow, glow, blur)
  + Transformations (rotate, scale, skew)

**4.2 Asset Management**

**4.2.1 Brand Kit**

* **Logo management**:
  + Support for 10 logo variations
  + Formats: SVG, PNG, JPG (max 10MB each)
  + Auto-resize for different contexts
* **Color palettes**:
  + 10 palettes with 50 colors each (500 total)
  + Support for HEX, RGB, CMYK, PMS
  + Color picker with eyedropper tool
* **Typography**:
  + 3 brand font tiers (heading, subheading, body)
  + Custom font upload (OTF, TTF, WOFF - max 15MB)
  + Web font library integration
* **Brand components**: Reusable design elements

**4.2.2 Media Library**

* **Organization**:
  + Folder structure with unlimited depth
  + Tags and metadata
  + Search functionality
  + Recent items tracking
* **Supported formats**:
  + Images: JPG, PNG, GIF, SVG, WEBP (recommended <5MB)
  + Videos: MP4, MOV, WEBM, AVI, MKV (max 100MB, 5 min)
  + Documents: PSD (max 400MB)

**4.2.3 Stock Media Integration**

* **Image sources**:
  + Shutterstock: 20M+ images with advanced search
  + Pexels, Unsplash, Pixabay: Free alternatives
* **Video sources**: Pexels for GIFs and videos
* **Audio library**: Background music tracks
* **Search capabilities**:
  + Keywords and tags
  + Color filtering
  + Orientation and size
  + License type

**4.3 Template System**

**4.3.1 Template Library**

* **Categories**:
  + Display ads (banner formats)
  + Social media (stories, posts, covers)
  + Digital marketing (email headers, web graphics)
  + Print materials (basic support)
* **Organization**:
  + Industry-specific collections
  + Seasonal and holiday themes
  + Style-based grouping
  + Trending templates section

**4.3.2 Template Customization**

* **Editable elements**: All text, images, colors
* **Locked elements**: Optional template protection
* **Smart replacement**: Auto-fit content to template
* **Save as template**: User-created templates

**4.4 Animation Features**

**4.4.1 Animation Editor**

* **Timeline interface**:
  + Frame-based editing (up to 180 seconds)
  + Layer-specific timelines
  + Keyframe management
  + Playback controls
* **Animation presets**:
  + Entry animations (fade, slide, zoom, bounce)
  + Exit animations (matching entry options)
  + Emphasis effects (pulse, shake, swing)
  + Path animations

**4.4.2 Magic Animator**

* **One-click animation**: Apply to entire design
* **Smart sequencing**: Automatic timing adjustments
* **Animation styles**:
  + Subtle (minimal movement)
  + Dynamic (moderate animation)
  + Energetic (high movement)

**4.4.3 Advanced Controls**

* **Easing curves**: Linear, ease-in, ease-out, custom
* **Loop settings**: Infinite, count-based, ping-pong
* **Trigger options**: On-load, on-click, on-hover
* **Timing functions**: Delay, duration, stagger

**4.5 AI-Powered Features**

**4.5.1 AI Image Generation**

* **Text-to-image**: Generate from descriptions
* **Style presets**:
  + Realistic
  + Digital art
  + 3D model
  + Isometric
  + Pixel art
  + Anime
  + Vaporwave
* **Batch generation**: Up to 4 variations
* **Reference image**: Style transfer capabilities

**4.5.2 AI Image Editing**

* **Background removal**: One-click isolation
* **Background generation**: AI replacement
* **Object removal**: Content-aware deletion
* **Image upscaling**: Up to 2000x2000px
* **Background blur**: 4 intensity levels
* **Image expansion**: Generative outpainting

**4.5.3 AI Text Generation**

* **Copywriting assistant**:
  + Headlines and taglines
  + Body copy
  + Call-to-action buttons
* **Tone options**: 10 voice variations
* **Bulk generation**: Up to 10 variations
* **Grammar optimization**: Auto-correction

**4.5.4 AI Translation**

* **Language support**: 100+ languages
* **Bulk translation**: Entire projects
* **Context awareness**: Marketing-optimized
* **Cultural adaptation**: Localization features

**4.6 Export and Publishing**

**4.6.1 Export Formats**

* **Static formats**:
  + JPG (quality settings 1-100)
  + PNG (with transparency)
  + WEBP (modern compression)
  + PDF (print and standard)
  + SVG (vector graphics)
* **Animated formats**:
  + HTML5 (with custom scripts)
  + GIF (max 5 FPS)
  + MP4 (max 180 seconds)
  + AMPHTML (mobile-optimized)

**4.6.2 Export Options**

* **Quality settings**: Low, medium, high, uncompressed
* **Retina support**: 2x resolution export
* **Batch export**: Multiple formats simultaneously
* **Network optimization**: Platform-specific presets
* **Fallback images**: For animated content

**4.6.3 Ad Network Compliance**

* **ClickTag integration**: Industry standard
* **File size optimization**: Meet platform limits
* **Naming conventions**: Automatic compliance
* **Validation**: Pre-export checks

**5. Technical Requirements**

**5.1 Architecture**

**5.1.1 Frontend Architecture**

* **Framework**: React 18+ with TypeScript
* **State Management**: Redux Toolkit or Zustand
* **Rendering Engine**: WebGL for canvas operations
* **CSS Framework**: Tailwind CSS for UI components
* **Build System**: Vite for optimal performance

**5.1.2 Backend Architecture**

* **API Framework**: Node.js with Express or NestJS
* **Database**:
  + PostgreSQL for relational data
  + MongoDB for asset metadata
  + Redis for caching
* **File Storage**: AWS S3 or compatible
* **Message Queue**: RabbitMQ for async operations

**5.1.3 AI Integration**

* **Image Generation**: Stable Diffusion API
* **Text Generation**: OpenAI GPT-4 API
* **Computer Vision**: Custom models for object detection
* **Translation**: Google Translate API or DeepL

**5.2 Performance Requirements**

**5.2.1 Response Times**

* **Page load**: < 3 seconds
* **Canvas operations**: < 100ms latency
* **Save operations**: < 2 seconds
* **Export generation**: < 30 seconds for standard formats

**5.2.2 Scalability**

* **Concurrent users**: Support 10,000+ active users
* **Storage**: Petabyte-scale file storage
* **API throughput**: 1000+ requests/second
* **CDN**: Global content delivery

**5.2.3 Reliability**

* **Uptime**: 99.9% availability
* **Auto-save**: Every 30 seconds
* **Version history**: Last 30 saves
* **Disaster recovery**: < 4 hour RTO

**5.3 Security Requirements**

**5.3.1 Data Protection**

* **Encryption**: TLS 1.3 for transit, AES-256 for storage
* **Authentication**: JWT with refresh tokens
* **Authorization**: Role-based access control
* **Data isolation**: User data segregation

**5.3.2 Compliance**

* **GDPR**: Full compliance with data protection
* **CCPA**: California privacy rights
* **SOC 2**: Type II certification
* **ISO 27001**: Information security

**5.4 API Requirements**

**5.4.1 REST API**

* **Endpoints**:
  + /designs - CRUD operations
  + /assets - Media management
  + /templates - Template operations
  + /export - Export generation
  + /ai - AI feature access

**5.4.2 GraphQL API**

* **Schema**: Comprehensive type definitions
* **Subscriptions**: Real-time updates
* **Batching**: Query optimization
* **Caching**: Intelligent cache policies

**5.4.3 Webhooks**

* **Events**: Design saved, export complete, AI generation done
* **Retry logic**: Exponential backoff
* **Security**: HMAC signature verification

**6. User Interface Requirements**

**6.1 Design System**

**6.1.1 Visual Design**

* **Color scheme**: Light and dark mode support
* **Typography**: System fonts with custom brand option
* **Spacing**: 8px grid system
* **Components**: Consistent design patterns

**6.1.2 Responsive Design**

* **Breakpoints**:
  + Mobile: 320px - 768px
  + Tablet: 768px - 1024px
  + Desktop: 1024px+
* **Touch optimization**: Gesture support
* **Adaptive UI**: Context-aware interfaces

**6.2 Editor Interface**

**6.2.1 Layout Structure**

* **Header**: Project controls and export options
* **Left sidebar**: Tools and asset panels
* **Canvas area**: Central workspace
* **Right sidebar**: Properties and layers
* **Timeline**: Bottom animation controls

**6.2.2 Interaction Patterns**

* **Drag and drop**: Universal support
* **Keyboard shortcuts**: Comprehensive set
* **Context menus**: Right-click options
* **Tooltips**: Helpful guidance

**6.3 Accessibility**

**6.3.1 Standards Compliance**

* **WCAG 2.1**: Level AA compliance
* **Keyboard navigation**: Full support
* **Screen readers**: ARIA labels
* **Color contrast**: 4.5:1 minimum

**7. Integration Requirements**

**7.1 Third-Party Services**

**7.1.1 Cloud Storage**

* **Google Drive**: Import/export
* **Dropbox**: File sync
* **OneDrive**: Microsoft integration

**7.1.2 Marketing Platforms**

* **Google Ads**: Direct publishing
* **Facebook Ads**: Campaign integration
* **Email platforms**: Template export

**7.1.3 Analytics**

* **Google Analytics**: Usage tracking
* **Mixpanel**: Feature analytics
* **Hotjar**: User behavior

**7.2 File Format Support**

**7.2.1 Import Formats**

* **Adobe**: PSD, AI (basic support)
* **Images**: All major formats
* **Fonts**: OTF, TTF, WOFF, WOFF2
* **Data**: CSV for dynamic content

**7.2.2 Export Integrations**

* **Ad networks**: 100+ platform presets
* **Social media**: Optimized formats
* **Print**: PDF with bleed marks
* **Web**: SEO-optimized images

**8. Development Phases**

**8.1 Phase 1: MVP (Months 1-3)**

* Basic editor with shape and text tools
* Template library (100+ templates)
* Single-size canvas
* Basic export (JPG, PNG)
* File upload and management

**8.2 Phase 2: Core Features (Months 4-6)**

* Multi-size workflow
* Animation timeline
* AI background removal
* Brand Kit basics
* Advanced export formats

**8.3 Phase 3: AI Integration (Months 7-9)**

* AI image generation
* AI copywriting
* Smart animations
* Advanced Brand Kit
* API development

**8.4 Phase 4: Advanced Features (Months 10-12)**

* Full AI suite
* Video support
* Advanced animations
* All integrations
* Performance optimization

**9. Success Metrics**

**9.1 User Metrics**

* **Monthly Active Users**: Target 100,000 by Year 1
* **Design Creation**: Average 10 designs/user/month
* **User Retention**: 60% monthly retention
* **Feature Adoption**: 40% using AI features

**9.2 Performance Metrics**

* **Load Time**: < 3 seconds globally
* **Export Success**: > 99% reliability
* **AI Generation**: < 10 seconds average
* **Uptime**: 99.9% availability

**9.3 Business Metrics**

* **User Satisfaction**: NPS > 50
* **Support Tickets**: < 5% of active users
* **Feature Usage**: 70% feature utilization
* **Platform Growth**: 20% MoM growth

**10. Appendices**

**10.1 Glossary**

* **Design Set**: Collection of same design in multiple sizes
* **Brand Kit**: Central repository of brand assets
* **Magic Animator**: One-click animation system
* **ClickTag**: Ad network tracking standard

**10.2 Technical Specifications**

* Detailed API documentation
* Database schema designs
* Infrastructure diagrams
* Security protocols

**10.3 Competitive Analysis**

* Feature comparison matrix
* Pricing analysis
* Market positioning
* Differentiation strategy

**Document Control**

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