Functional Specifications

AI-Powered LaTeX CV Generator

1. Introduction

This document details the functional specifications for the AI-Powered LaTeX CV Generator, a web application that enables users to create professional CVs using LaTeX templates without requiring knowledge of LaTeX. The system uses AI to generate properly formatted LaTeX code based on user input.

2. User Interface

2.1 Home Page

- **Welcome Section**: Brief introduction to the application
- **Get Started Button**: Prominent CTA to begin CV creation
- **Sample CV Gallery**: Display of example CVs created with the application
- **How It Works**: Step-by-step explanation of the CV creation process

2.2 CV Information Input Interface

- **Multi-step Form**: Organized by CV sections
- **Progress Indicator**: Visual indicator of completion status
- **Navigation Controls**: Previous/Next buttons between sections
- **Save Draft Indicator**: Visual feedback when auto-saving

2.3 Section-Specific Forms

2.3.1 Personal Information

- Full name (required)
- Professional title (optional)
- Contact information (phone, email, required)
- Location (city, country, optional)
- Professional profiles (LinkedIn, GitHub, optional)
- Personal website (optional)
- Professional summary (optional, with character limit)

2.3.2 Education

- Add multiple education entries
- Institution name (required)
- Degree/Certificate (required)
- Field of study (required)
- Start and end dates (required)
- GPA (optional)

- Honors/Awards (optional)
- Relevant coursework (optional)
- Delete entry option

2.3.3 Work Experience

- Add multiple experience entries
- Company/Organization name (required)
- Position title (required)
- Start and end dates (required)
- Location (optional)
- Responsibilities and achievements (required)
  - Bullet point entry system
  - Suggestion helpers for action verbs
- Delete entry option

2.3.4 Skills

- Technical skills (optional)
- Language proficiencies (optional)
- Certifications (optional)
- Soft skills (optional)
- Categorization options
- Rating system (basic/intermediate/advanced)

2.3.5 Projects

- Add multiple project entries
- Project name (required)
- Description (required)
- Technologies used (optional)
- Project URL (optional)
- Start and end dates (optional)
- Delete entry option

2.3.6 Additional Sections

- Publications
- Conferences
- Volunteer Experience
- Honors and Awards
- References

2.4 Template Selection

- Visual preview of template options
- Selection interface

- Basic customization options (font size, margins)

2.5 Preview Page

- Rendered PDF preview
- Section-by-section navigation
- Return to edit option
- Download button

3. AI Integration

3.1 Data Processing

- Form data validation
- Data structuring for AI processing
- Error handling for incomplete data

3.2 AI Interaction

- API call to selected AI service
- Prompt engineering for LaTeX generation
- Response validation
- Error handling for API limitations

3.3 Content Enhancement

- Formatting suggestions
- Content organization
- Bullet point refinement
- Section ordering

4. LaTeX Processing

4.1 Template Management

- Template storage system
- Template selection logic
- Template variables and placeholders

4.2 LaTeX Generation

- Dynamic code generation based on AI output
- Template integration
- Error checking for LaTeX syntax

4.3 PDF Compilation

- LaTeX to PDF conversion process
- Error handling for compilation failures

- PDF validation
- File size optimization

5. Output Management

5.1 PDF Download

- Download button functionality
- File naming convention
- Download success confirmation

5.2 Session Management

- Temporary storage of user data during session
- Session timeout handling
- Browser refresh/navigation handling

6. Error Handling

6.1 Input Validation

- Required field validation
- Format validation
- Error messaging system

6.2 Process Errors

- AI service error handling
- LaTeX compilation error handling
- PDF generation error handling

6.3 User Feedback

- Error notification system
- Guided error resolution
- Support information

7. Performance Requirements

- Page load time: < 3 seconds
- Form submission response: < 2 seconds
- AI processing time: < 5 seconds
- PDF generation time: < 5 seconds
- Concurrent user support: 100+ users

8. Security Requirements

- HTTPS implementation
- Data handling in compliance with privacy regulations

- No persistent storage of user data without consent
- API key protection
- Input sanitization

9. Accessibility Requirements

- WCAG 2.1 AA compliance
- Screen reader compatibility
- Keyboard navigation support
- Color contrast requirements
- Text resizing support

10. Internationalization

- UI structure prepared for future language additions
- Date format handling
- Character encoding support

This document outlines the functional specifications for the AI-Powered LaTeX CV Generator. Implementation details are provided in the Technical Specifications document.