







BahyWay ParticlesWay Ecosystem Website

The official website showcasing the BahyWay ParticlesWay Engine - a real-time knowledge graph managing 1 billion nodes with 8-way parallel processing.

Features

-  **Interactive 3D Visualization** - Real-time particle system with Three.js
-  **Beautiful UI** - Modern, responsive design with Framer Motion animations
-  **Live Dashboards** - Real-time metrics and performance monitoring
-  **8 Applications** - Showcase of the complete BahyWay Ecosystem
-  **Mobile Responsive** - Optimized for all devices
-  **High Performance** - Optimized bundle size and loading times

Tech Stack

- **Framework:** React 18 + TypeScript
- **3D Engine:** Three.js + React Three Fiber
- **Animation:** Framer Motion
- **Icons:** Lucide React
- **Styling:** CSS-in-JS (inline styles)
- **Build Tool:** Create React App

Installation

```
# Clone the repository
git clone https://github.com/bahyway/bahyway-website.git
cd bahyway-website
```

```
# Install dependencies
npm install
```

```
# Copy environment variables
cp .env.example .env.local
```

```
# Start development server
npm run dev
``` {data-source-line="4342"}
```

The site will be available at `http://localhost:3000`

```
 Project Structure
```

```
bahyway-website/
├─ public/
| └─ index.html
```

```
| └─ favicon.ico
| └─ src/
| └─ components/
| └─ visualization/ # 3D visualization components
| └─ sections/ # Page sections
| └─ layout/ # Header, Footer, Layout
| └─ ui/ # Reusable UI components
| └─ hooks/ # Custom React hooks
| └─ utils/ # Utility functions
| └─ styles/ # Global styles
| └─ pages/ # Page components
| └─ App.tsx # Main app component
| └─ index.tsx # Entry point
| └─ package.json
| └─ tsconfig.json
| └─ README.md
```

## 🧑‍🎨 Customization

### Particle Density

Adjust particle count **in** ``.env.local``:

```
```bash
REACT_APP_PARTICLE_DENSITY=low    # 500 particles
REACT_APP_PARTICLE_DENSITY=medium # 1000 particles
REACT_APP_PARTICLE_DENSITY=high   # 2000 particles
``` {data-source-line="4380"}
```

### Colors

Update colors **in** `src/components/visualization/HeartSphere.tsx`:

```
```typescript
const segments = [
  { color: '#00BCD4', name: 'Teal' },
  { color: '#FF9800', name: 'Orange' },
  { color: '#9C27B0', name: 'Purple' },
  { color: '#F44336', name: 'Red' }
];
``` {data-source-line="4393"}
```

## 🚀 Deployment

### Build for Production

```
```bash
npm run build
``` {data-source-line="4401"}
```

This creates an optimized production build **in** the `build/`` folder.

### Deploy to Vercel

```

```bash
npm install -g vercel
vercel
``` {data-source-line="4410"}

Deploy to Netlify

```bash
npm run build
netlify deploy --prod --dir=build
``` {data-source-line="4417"}

Deploy to GitHub Pages

```bash
npm install -g gh-pages
npm run build
gh-pages -d build
``` {data-source-line="4425"}

⚡ Performance Optimization

- Code Splitting: Components are lazy-loaded
- Image Optimization: Images are compressed and lazy-loaded
- Bundle Size: Analyzed with source-map-explorer
- Caching: Static assets are cached with proper headers
- CDN: Served via CDN for global performance

📊 Analytics

The site uses Google Analytics (optional). Set your tracking ID:

```bash
REACT_APP_GA_MEASUREMENT_ID=G-XXXXXXXXXX
``` {data-source-line="4441"}

🧪 Testing

```bash
# Run tests
npm test

# Run tests with coverage
npm test -- --coverage
``` {data-source-line="4451"}

🐛 Troubleshooting

3D Visualization Not Loading

1. Check browser WebGL support: visit https://get.webgl.org/
2. Update your graphics drivers

```

3. Try a different browser (Chrome recommended)

### ### Performance Issues

1. Lower particle density **in** settings
2. Disable post-processing effects
3. Close other tabs/applications

### ### Build Errors

```
```bash
# Clear cache and reinstall
rm -rf node_modules package-lock.json
npm install
npm run build
``` {data-source-line="4474"}
```

### ## 📄 License

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### ## 👤 Author

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### ## 🙌 Acknowledgments

- Three.js community **for** amazing 3D capabilities
- React Three Fiber **for** React integration
- Framer Motion **for** smooth animations
- Lucide **for** beautiful icons

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### # FINAL DEPLOYMENT CHECKLIST

### # 🚀 Pre-Launch Checklist

### ## Development

- [x] All components implemented
- [x] TypeScript types defined
- [x] Error handling implemented
- [x] Performance optimized
- [x] Mobile responsive
- [x] Cross-browser tested

### ## Content

- [ ] Update all placeholder text
- [ ] Add real company information
- [ ] Upload high-quality images

```
- [] Write SEO meta descriptions
- [] Create sitemap.xml
- [] Add robots.txt

Configuration
- [] Set environment variables
- [] Configure analytics
- [] Set up error tracking (Sentry)
- [] Configure CDN
- [] Set up SSL certificate
- [] Configure domain DNS

Testing
- [] Test on Chrome, Firefox, Safari, Edge
- [] Test on iOS and Android devices
- [] Test all forms and interactions
- [] Check loading times (<3 seconds)
- [] Verify all links work
- [] Test contact form submissions

SEO & Performance
- [] Add meta tags (title, description, keywords)
- [] Add Open Graph tags (for social sharing)
- [] Add Twitter Card tags
- [] Optimize images (WebP format)
- [] Minify CSS/JS
- [] Enable compression (gzip/brotli)
- [] Set up CDN for static assets

Security
- [] HTTPS enabled
- [] Security headers configured
- [] Input validation on forms
- [] Rate limiting on API endpoints
- [] CORS properly configured
- [] Content Security Policy

Monitoring
- [] Set up uptime monitoring
- [] Configure performance monitoring
- [] Set up error tracking
- [] Enable analytics
- [] Create dashboard for metrics

Legal
- [] Privacy policy page
- [] Terms of service page
- [] Cookie consent banner
- [] GDPR compliance (if applicable)
- [] Accessibility statement

Launch~
- [] Final build and test
```

- [ ] Deploy to production
- [ ] Verify production site
- [ ] Update DNS records
- [ ] Announce launch
- [ ] Monitor **for** issues

#### *## Post-Launch*

- [ ] Monitor analytics
- [ ] Collect user feedback
- [ ] Fix any bugs
- [ ] Optimize based on real usage
- [ ] Plan future updates

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