



Leonid Vinichenko

Senior Frontend Engineer, Expert 3D Graphics Software Engineer

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Summary: Developer with 10+ years of experience in frontend and 3D graphics (WebGL/WebGPU) in the browser. Responsible for architectural decisions, rendering system design, and team coordination. Focused on high performance and code quality.

Work Experience

Expert 3D Graphics Software Engineer at [Align Technology](#)

February 2024 – Present

Developer and architect of a 3D system for a web app used by orthodontists. Oversee architectural decisions and module integration, ensure code quality, and supervise part of the team.

- Drive architectural decisions and maintain coding standards
- Conduct regular code reviews, assign tasks, and mentor developers
- Coordinate **API** interaction with the backend, ensuring efficient two-way communication
- Leverage **WebGL/WebGPU** for high-performance **3D graphics**, writing custom shaders
- Designed and implemented an **Effect Compositor** system, integrating it into the **ECS (Entity-Component-System)**. This significantly streamlined the creation of complex graphical effects and composite scenes.
- Implemented visual debugging tools that simplify the development process for junior engineers, accelerate feature delivery, and significantly reduce bugs.

Senior Frontend Engineer at [Align Technology](#)

July 2017 – January 2024

Developed a 3D editor for orthodontists (visualizing and editing jaw models). Contributed to UI, infrastructure, and WebSocket support.

- Built UI components using **React**, migrated project from ES6 to **TypeScript**
- Introduced **Redux** for state management, reducing technical debt
- Implemented runtime icon generation with **canvas 2D** for the 3D scene
- Created unit and integration tests (**Jest** + puppeteer)
- Managed backend communication via **WebSocket** (message queue, disconnection handling)
- Configured custom materials and shaders for **Three.js**, working with 3D math

Frontend Developer at [Paragon Software](#)

April 2015 – July 2017

Developed and maintained a single-page application (SPA) for the personal account system.

- Built the application with **AngularJS**, used responsive design techniques
- Exchanged data with the server via **RESTful API**
- Configured the build process using **Webpack**
- Developed a **Node.js** tool for localization (Excel → JSON)

Skills

JavaScript	TypeScript	ES6	React	Redux	AngularJS	RxJS	WebGL
WebGPU	Three.js	Shaders	ECS	Node.js	RESTful API	WebSocket	
Webpack	Jest	Puppeteer	Playwright	HTML	CSS/SASS	3D Math	

Education

Peoples' Friendship University of Russia (RUDN)

2006 – 2010

Bachelor's degree in General Physics

Peoples' Friendship University of Russia (RUDN)

2010 – 2012

Master's degree in General Physics

Languages

English — Fluent