

# AI-Assisted Software Engineering

6 months

Online

Part-time

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# What is AI-Assisted Software Engineering?

The AI-Assisted Software Engineering Program by TripleTen is a 6-month program designed for people from diverse backgrounds. No prior tech experience required—just the ambition to become a highly paid professional in this field.

The program equips you with skills to land a tech job, starting with web fundamentals: HTML, CSS, and JavaScript. You'll learn professional workflows, including tools like Git and GitHub, Figma, and JSON APIs. After mastering fundamentals, you'll dive into the MERN stack, building secure backends with ExpressJS and MongoDB, and accessible frontends with React. You'll also containerize applications with Docker and deploy them on AWS, utilizing modern developer tools such as ESLint, Jest, TypeScript, and CI/CD via GitHub Actions, as well as GitHub Copilot.

By the end of the program, you'll have four strong portfolio projects showcasing your expertise. In addition to technical skills, you'll develop essential soft skills, including time management, teamwork, problem-solving, working with documentation, and building an online presence for your job search.

# Program Structure

Your journey will be divided into sprints—two-week-long work-intensive periods grouped into thematic modules.

Each sprint will have a particular learning objective, reinforced through quizzes and tasks. Most tech companies work in this format, so you will come prepared. At the end of the sprint, you will take the skills you've learned and combine them with your existing skills to work on a project that will be assessed by industry experts.

We provide some rough time estimates to help you plan and manage your schedule, and we recommend spending around 20 hours per week studying. However, we understand that everyone has different commitments and people learn at different speeds—so, we provide you with the possibility to extend your deadlines by 12 weeks in total.

# Module 1: Building Websites with HTML, CSS, and JS

Building Websites with HTML, CSS, and JS covers the foundational technologies for building modern web interfaces. HTML provides structure, CSS controls appearance, and JavaScript adds interactivity—together forming the core skillset every web developer needs. In this module, we introduce all three technologies and teach the essential workflows of professional web development, including version control with Git and GitHub, translating Figma designs into responsive layouts, and fetching data from remote APIs to create dynamic, interactive web applications.

Sprint 1.  
Creating a  
Landing Page in  
HTML and CSS

1. Structuring a Webpage with HTML
2. Changing a Webpage's Appearance with CSS
3. Making a Website More Accessible with HTML Semantics
4. Understanding Document Flow and the Box Model
5. Building Responsive Layouts with Flexbox

## Sprint 1. Creating a Landing Page in HTML and CSS

6. Pseudo-elements, Pseudo-selectors,  
and CSS Combinators

7. AI for Software Engineers

**Project 1 Part 1. Creating a Landing Page  
with HTML and CSS**

## Sprint 2. Making a Webpage Interactive with JavaScript

1. JavaScript DataTypes and Variables

2. Controlling Program Flow with Conditionals and Loops

3. Writing Reusable Code with Functions

4. Storing and Manipulating Data with Arrays and Objects

5. Debugging JavaScript in the Browser

6. Manipulating a Webpage via the DOM using JavaScript

7. Creating Elements and Adding Them to the DOM

8. Documenting Code with AI and JS Docs

**Project 1 Part 2. Adding Interactivity to a Webpage  
with JavaScript**

## Sprint 3. Creating Responsive Layouts from Figma Specifications

1. Navigating the File System with the Command Line
2. Version Control and Collaboration with Git and GitHub
3. Getting Design Specifications from Figma
4. Component-Based CSS and BEM
5. Pulling Elements Out of the Document Flow with CSS Positioning
6. More Flexible Layout Options with Flexbox and Grid
7. Using Media Queries to Make Responsive Layouts

### Project 1 Part 3. Building a Responsive Webpage

## Sprint 4. Form Submissions and Fetch Data from Remote APIs

1. Forms, Inputs, and Buttons
2. Handling Form Events
3. Processing Arrays with Array Methods
4. Function Scope and Syntax Variations
5. Client-Side Form Validation

Sprint 4.  
Form  
Submissions and  
Fetch Data from  
Remote APIs

6. DOM Events: Beyond Click and Submit

7. Asynchronous Code and Fetch Requests

Project 1 Part 4. Form Submissions and Fetch Requests

# Module 2: MERN Stack Software Engineering

MERN Stack Software Engineering introduces full-stack web development using MongoDB, Express, React, and Node.js—one of the most popular and in-demand technology stacks in modern web development. Students learn to build complete web applications from the ground up, starting with JSON API and database design, then connecting them to React frontends with secure authentication and authorization. In this module, we cover the entire development lifecycle from local development through containerization with Docker and deployment to AWS, preparing students to build and deploy production-ready applications.

## Sprint 5. Backend Development with Node and Express JS

1. Beyond Fetch Requests: Asynchronous JavaScript

2. APIs, HTTP, REST, and Postman

3. Node.js, NPM, Anatomy, and Streams

4. Building an HTTP Server with Express

5. Backend Error Handling

6. Unit Testing with Jest

**Project 2 Part 1. Building a Server**

## Sprint 6. Persisting Data with an ExpressJS and MongoDB backend

1. Git Branches and Merging

2. Persisting Data with MongoDB

3. AI Code Completion and Coding Agents

4. Implementing RAG with MongoDB

5. What is Authentication and Authorization?

6. Backend Authentication and Authorization with  
Express and MongoDB

7. Server-Side Security

**Project 2 Part 2. Building an Express Server  
with MongoDB Interactions**

## Sprint 7. Building a React Interface

1. Object Destructuring and Methods

2. Generating a React Project Template with Vite

3. Functional Components and JSX

4. Managing State and Side Effects with Hooks

## Sprint 7. Building a React Interface

5. Essential Algorithms and Data Structures for React Interfaces

6. Conditional Rendering

**Project 2 Part 3. Building a React Interface**

JS Classes and the Dependency Injection Pattern

## Sprint 8. Authorization and Authentication in a MERN Stack Application

1. Creating Multiple Routes with React Router

2. Patterns for Managing Data in React

3. Working with Forms in React

4. Ensuring Accessibility with A11y

5. Frontend Authentication and Authorization with React

6. Client-Side Security

**Project 2 Part 4. Data Management,  
Authorization, and Authentication**

## Sprint 9. Containerizing and Deploying to AWS

1. Improvement Performance with Caching

2. Creating an EC2 VM on AWS and Registering a Subdomain

3. Middleware for Production-Ready Applications

4. Containerizing a MERN Stack Application with Docker, Docker Compose, and Caddy

5. Deploying a Container to an EC2 Instance

6. Continuous Deployment

7. Server-Side Security

**Project 2 Part 5. Containerizing and Deploying to AWS**

# Module 3: AI-Assisted Software Engineering

AI-Assisted Software Engineering focuses on leveraging modern AI tools to accelerate development while building production-quality applications with TypeScript. AI coding assistants, such as GitHub Copilot and coding agents, are transforming the way developers work, enabling faster prototyping, more robust testing, and improved code quality. In this module, we teach students to effectively collaborate with AI tools while building a full-stack TypeScript application with strong security practices, culminating in a professional portfolio website that showcases their complete skill set to potential employers.

**Sprint 10.  
Building a  
Secure  
TypeScript  
Application with  
AI Assistance**

1. TypeScript Crash Course

2. Advanced TypeScript for React

3. TypeScript for MongoDB & Data Modeling

**Project 3 Part 1. Data Architecture & TypeScript Design**

**Project 3 Part 2. React Setup & Secure External API Integration**

Sprint 11.  
Building a  
Secure Backend  
with AI  
Assistance

Project 3 Part 3. Components, State Management  
& Secure Forms

Project 3 Part 4. Frontend Security and Testing

Sprint 11.  
Building a  
Secure Backend  
with AI  
Assistance

Project 3 Part 5. Secure Backend Setup & Data Models

Project 3 Part 6. Secure Backend CRUD API

Project 3 Part 7. Full-Stack Integration

Project 3 Part 8. Security Testing & Debugging

Project 3 Part 9. Secure Deployment,  
Documentation & Final Polish

Data Structures and Algorithms Practice

Sprint 12.  
Portfolio Website  
and Interview  
Prep

1. Portfolio Site Architecture using TypeScript

2. Deploying Frontend-only Sites to Production

3. Interview Prep

Sprint 12.  
Portfolio Website  
and Interview  
Prep

4. Tech Interview Prep

Project 4. Portfolio Website

Data Structures and Algorithms Practice

# Career Preparation

## From day one

Access career-focused lessons that strengthen both:

Hard skills: for job applications

Soft skills: networking, communication, self-promotion and interview techniques

## As you progress

- Participate in Code Jams—team competitions to apply your skills
- Complete an Externship—gain real-world business experience (you'll learn more as you advance!)

## Midway through

Partner with a career coach to:

- Develop a personalized job search strategy
- Perfect your resume, LinkedIn profile, and portfolio
- Practice interview & networking techniques in group and individual sessions

## After graduation

Enter the job search phase with support from a Placement Coordinator:

- Regular check-ins to keep you on track
- Feedback to improve applications and networking
- Help connecting with recruiters and hiring managers
- AI-powered job search platform to manage applications and track progress

**tripleten**

# Learn the job. Land the job.

6 months

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