

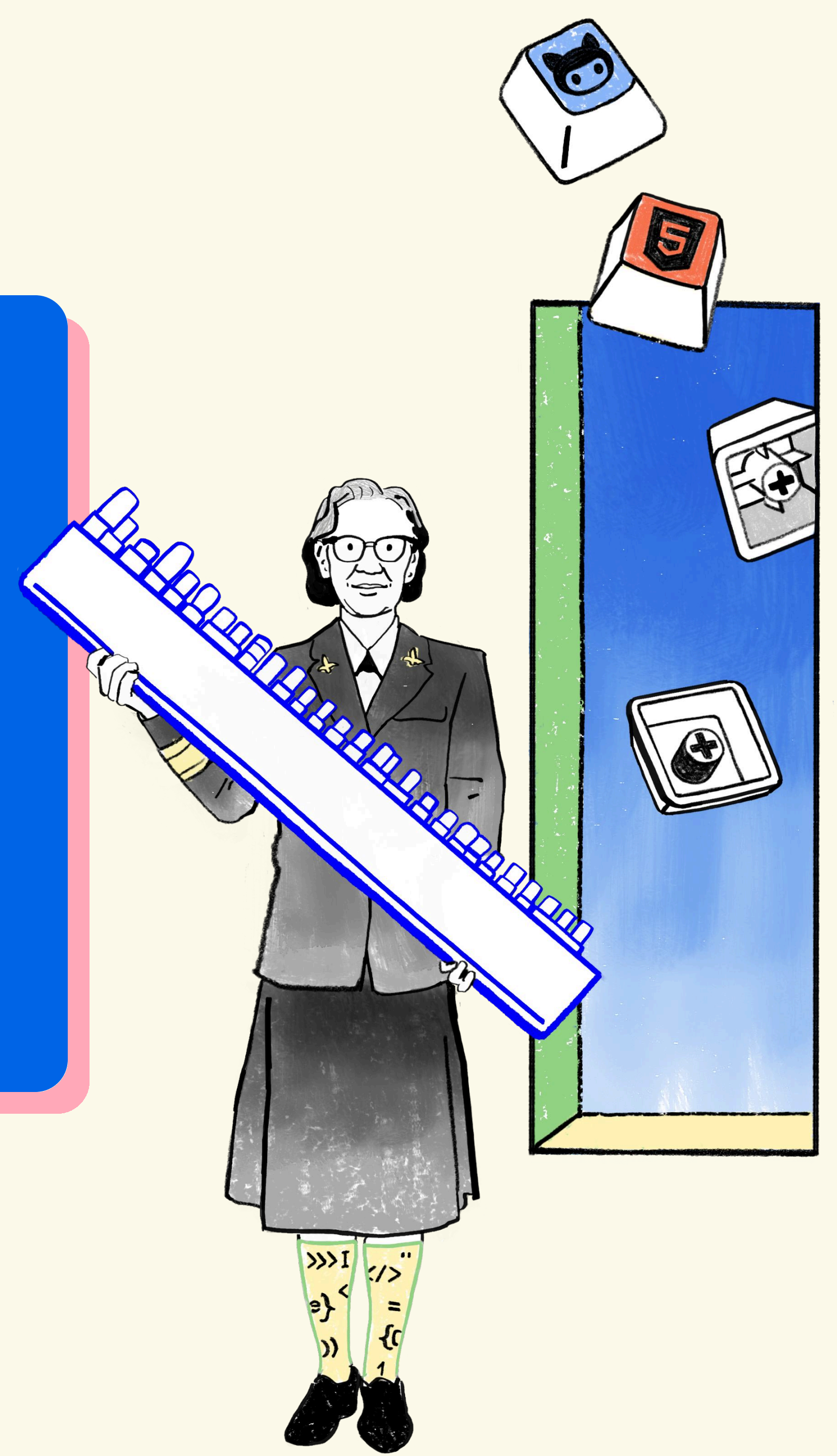
4-Week Intensive Program



Leadership Circle

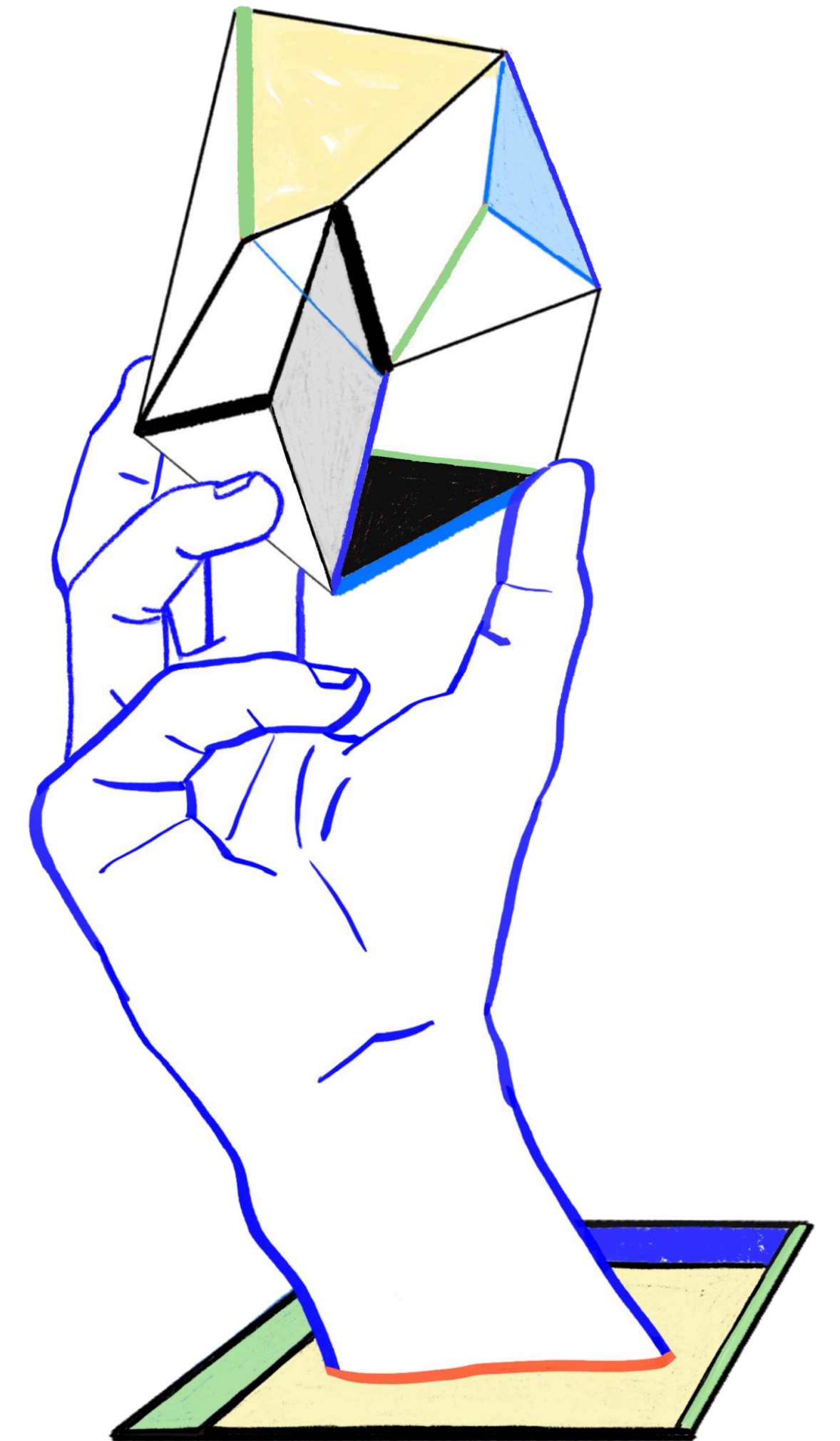
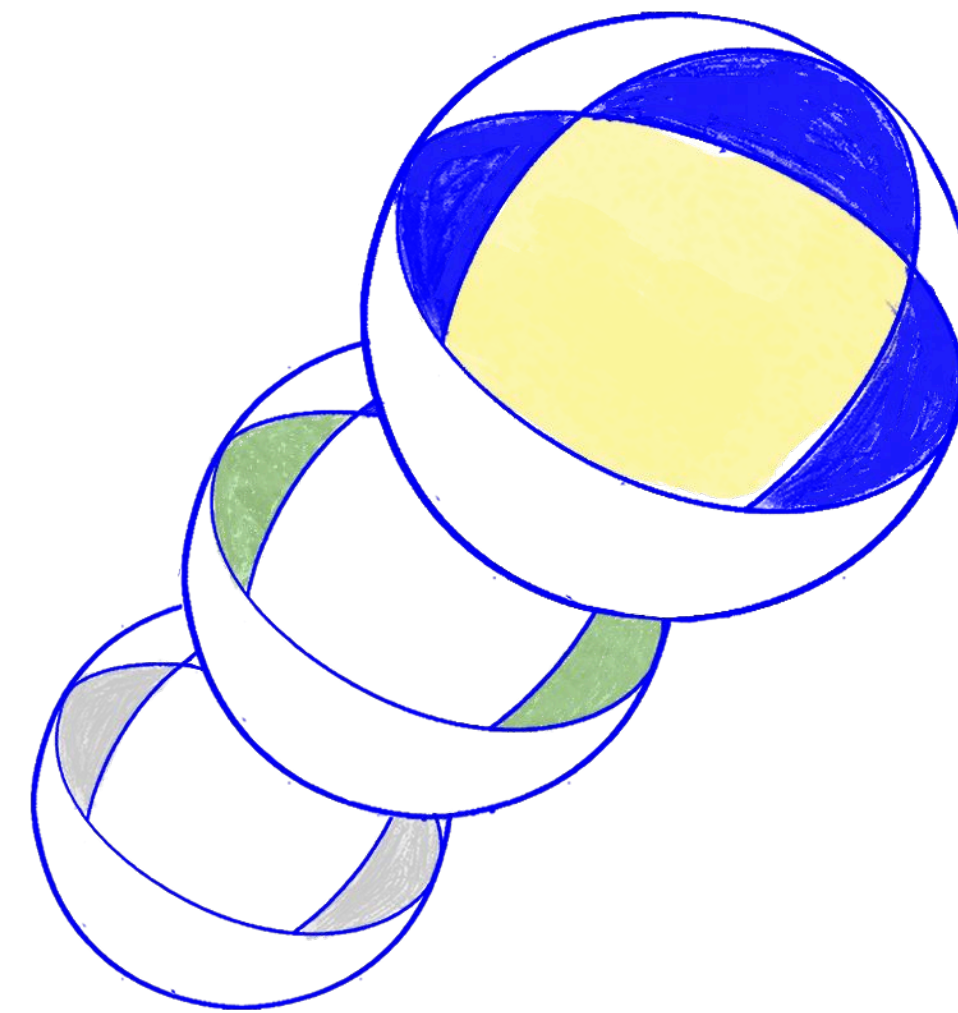
AI & ML Technical Leadership

Become a Modern Software Engineer





1. **Introduction**
2. **Overview**
3. **Structure & schedule**
4. **Content Breakdown**
5. **Outcomes**
6. **Investment**
7. **Getting Started**



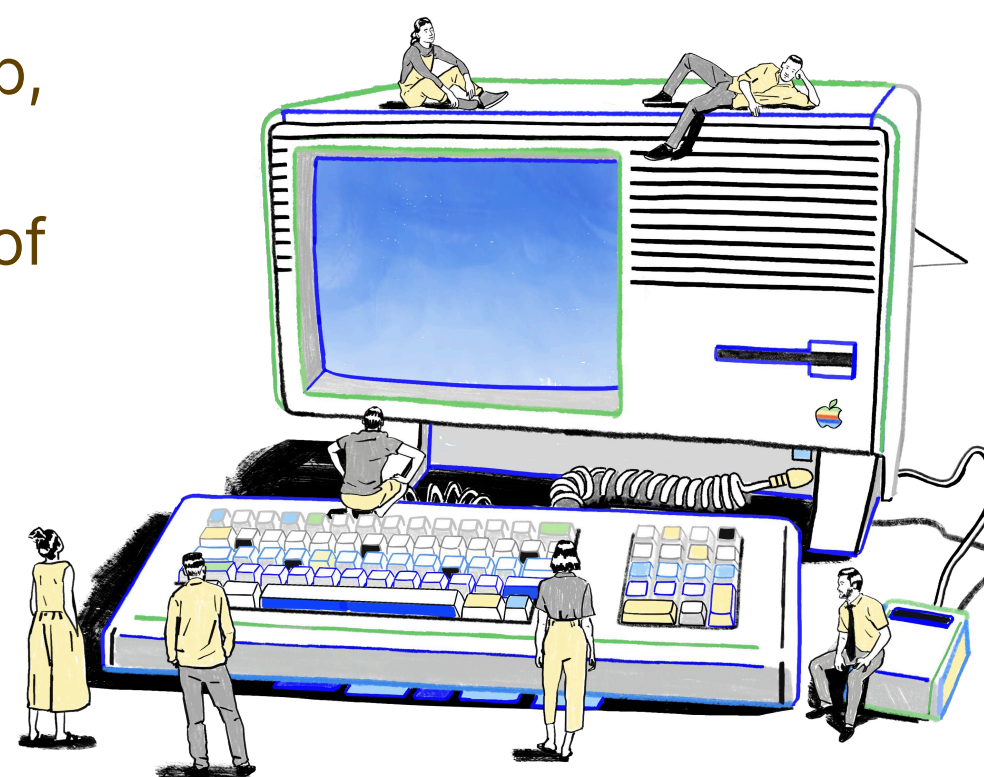


A new technologist, for a changing world

Our world faces unprecedented challenges, and software is the medium that will drive solutions across most domains — from health, finance and cleantech, to government — and AI/ML will multiply that impact.

To meet this moment, it calls for a new kind of technologist — the modern software engineer who is the bridge between people, society, and technology. **Folks who can decide where, when, and how to wield AI/ML responsibly to solve today's problems.**

That's an important role of leadership, requiring people with a deep understanding of the technical side of these tools, coupled with a deep empathy for the needs of users and broader societal impact.



And as technology changes, so does Codesmith. After nearly a decade cultivating close to 4000 software engineers, we're launching a new AI & ML Technical Leadership program to help software engineers to lead and build with these new tools.

This builds on from the work of our Data Science & Machine Learning research group where Codesmith residents contributed to tooling for industry-standard ML tools like Tensorflow.js under the leadership of Codesmith co-founder Alex Zai.



Codesmith is building a new generation of engineers — folks who know when, where, and how to wield AI/ML responsibly to solve society's complex challenges

Will Sentance, CEO @ Codesmith





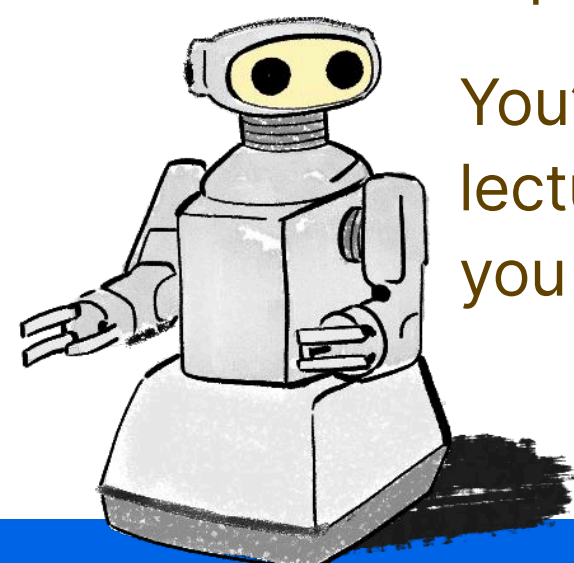
Level up as a modern Software Engineer

This intensive, four-week program is designed to empower mid-to-senior-level software engineers wanting to take their careers to the next level.

Our **AI & ML Technical Leadership Program** packs months of learning into a high intensity three-part program, providing a deep dive into the technical and leadership skills necessary to lead AI-driven projects.

The program includes both technical deep dives and advanced industry-specific content structured as a comprehensive learning experience to level up your career.

You'll **join a cohort of top engineers to learn together** in a series of lectures, workshops, and collaborative coding sessions enabling you to take on leadership roles in AI-driven projects.



Using Codesmith's method of teaching, you'll go 'under the hood' of technical models to build foundational understanding, then implement that knowledge by building impactful, original open source projects.

This program is divided into three parts:

PART
1

Foundational technical skills including a practical project for your portfolio

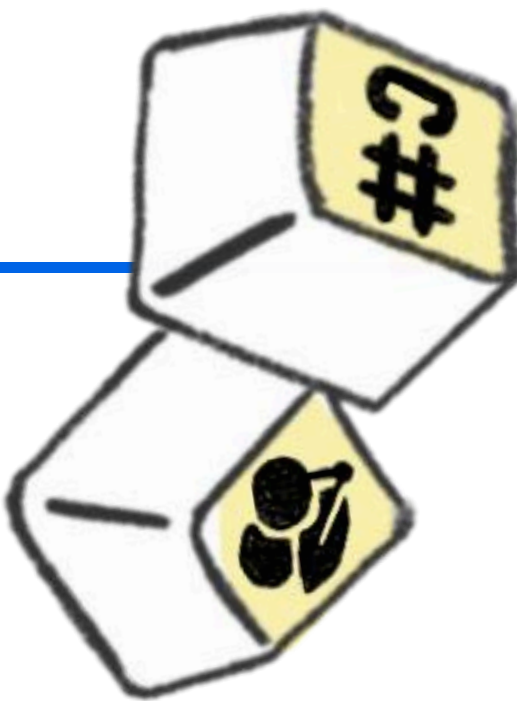
PART
2

Advanced industry practice & leadership

PART
3

Monthly AI & ML Leadership Circle

This structure will bolster your capacity to build a solid technical base, apply your skills in real-world scenarios, and continue your professional development even after the program concludes to continuously adapt to the shifting technical landscape.



Learning Areas

AI

The technical areas we'll explore in this program all extend historic efforts in computer, program and system design - whether modeling human language or designing programming languages for developers to interface with machines.

You will encounter groundbreaking approaches to achieving these goals in this program, but always place them in the context of solving problems that are intrinsic to software engineering - the kinds of problems you face in your workplaces and development workflows every day.

Much of these areas are extensions of what it is to be a 'full stack' engineer - RAG is informed by API design, MLOps by server design, & prompting by debugging techniques. But with each of these areas you will add the frameworks ('mental models') of prediction and modeling data distributions that form the backbone of the AI/ML domain.

LLMS

We have aspired to capture human experience (calculation, language, image interpretation) in data since the beginning of computation. LLMs achieve a model of human language use with unprecedented depth and predictive power - enabling new levels of communication and tooling.

PROMPTING

Developers are expected to build with processes and memory that happen at a scale many orders of magnitudes larger than human comprehension. Therefore coding abstracts that complexity. Programming language design is the pursuit of the optimal interface for a programmer with a complex computational system. Prompting introduces a new set of possible approaches to this interface.

MLOPS

To continue the idea that much of the AI/ML program extends domains you've already encountered as a full stack engineer - you'll recognize you have likely already worked in many of the tools used in MLOps.

RAG

Practical system design involves integrating often disparate data sources with unreliable & unpredictable API design. RAG opens up new approaches to these integrations with new constraints but also potentially profound new ways of flexibly handling unreliable or unstructured data sources at scale.

FINE-TUNING

While much of the program extends the full stack engineer's existing areas of expertise, fine-tuning models benefits from a deeper understanding of how neural networks and LLMs are working under-the-hood. You'll cover more on prediction & neural networks in part 2 of the precourse and LLMs in part 1 of the program. Explore these resources on fine-tuning - they'll start to become clearer as you take on the rest of the pre-course and program itself.



A program for busy engineers with busy lives

You'll be learning alongside a cohort of highly talented SWEs and at a time that fits around your work and life – it will be 5PM-8PM PT / 8 PM-11 PM ET during the week and 10AM-1PM PT / 1 PM-4 PM ET on Saturdays.

Is it the right program for you?

If you are a mid-to-senior-level software engineer looking to advance your career by mastering AI techniques, deepen your expertise in ML, and applying AI/ML solutions to real-world challenges, this is the ideal program for you.

PART
1

Foundational Technical Skills

📅 Monday to Thursday ⌚ 3 hours/day

Explore key AI/ML concepts such as LLMs, embeddings, RAG, fine-tuning, and MLOps.

INCLUDES

- 📖 LECTURES
- 💡 SKILL-BUILDING EXERCISES
- 🤝 COLLABORATIVE CODING
- 🔍 CODE REVIEWS
- 📁 PORTFOLIO PROJECT BUILDING

PART
2

Advanced Industry Insights

📅 Weekly/Saturdays ⌚ 3 hours/day

Deep dive into applying AI/ML in real-world settings and leadership in AI.

INCLUDES

- 📖 LECTURES
- 🔧 WORKSHOPS
- 🗣️ DISCUSSIONS ON THE LATEST AI TOOLS AND TECHNIQUES

PART
3

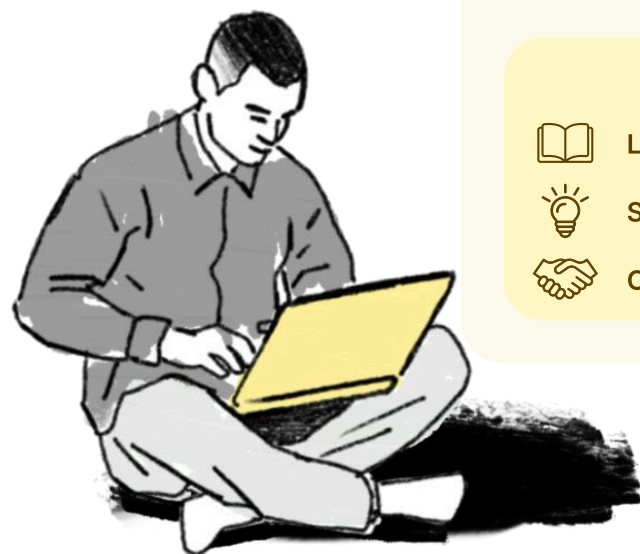
AI & ML Leadership Circle

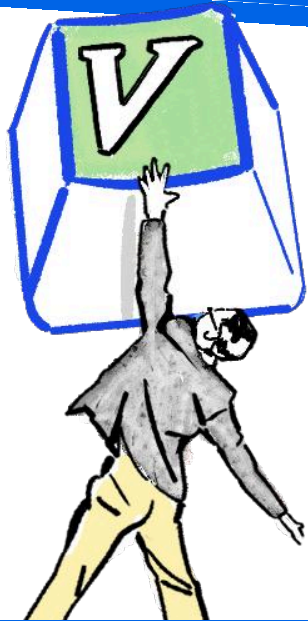
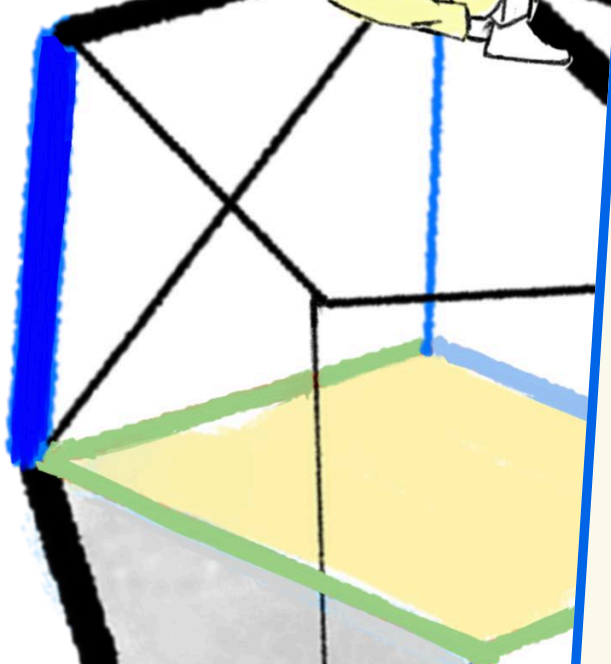
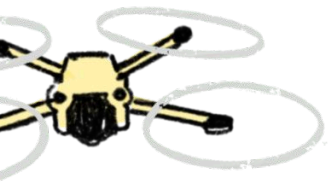
📅 Monthly ⌚ 2 hours/session

Gain insights from from industry-leading AI/ML experts who have developed cutting-edge software and products.

INCLUDES

- 📖 LECTURES
- 🌐 PEER BREAKOUT APPLICATIONS
- 🏆 BEST PRACTICES
- 🗣️ FACILITATED Q&A SESSIONS
- 🔧 OVERCOMING CHALLENGES



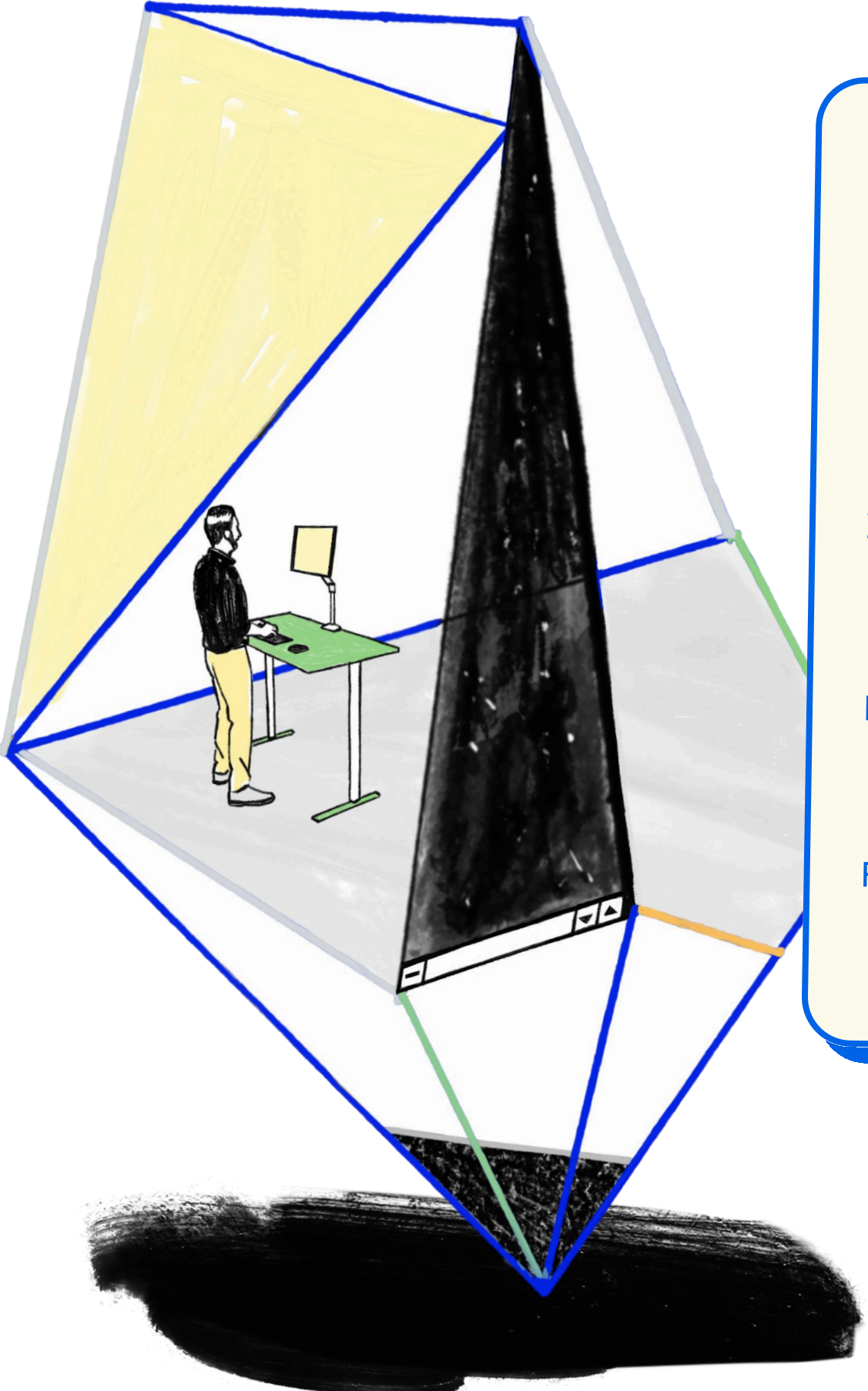


Day by day schedule							
Week/Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Week 1		🕒 3 hours	🕒 3 hours	🕒 3 hours	🕒 3 hours		
Week 2		🕒 3 hours	🕒 3 hours	🕒 3 hours	🕒 3 hours		🕒 3 hours
Week 3		✳️ Ongoing Project Work					🕒 3 hours
Week 4		✳️ Ongoing Project Work			🕒 3 hours		🕒 3 hours
Monthly		🕒 2 hours					🕒 3 hours

5PM-8PM PT / 8 PM-11 PM ET during the week.
10AM-1PM PT / 1 PM-4 PM ET on Saturdays.



Key focus areas



You'll dive deep into:

Large Language Models (LLMs), Embeddings, Self-Attention, and Transformers

- How LLMs represent data through tokenization, embeddings, self-attention and the transformer architecture, and how this representation informs our decisions around how and why to use LLMs
- How LLMs are guided to generate text through pre-training and fine-tuning and how to interact with LLMs in the most effective and efficient way

ML Ops

- How to facilitate the continuous development and deployment of ML models at scale through best-practice workflows and industry-standard platforms

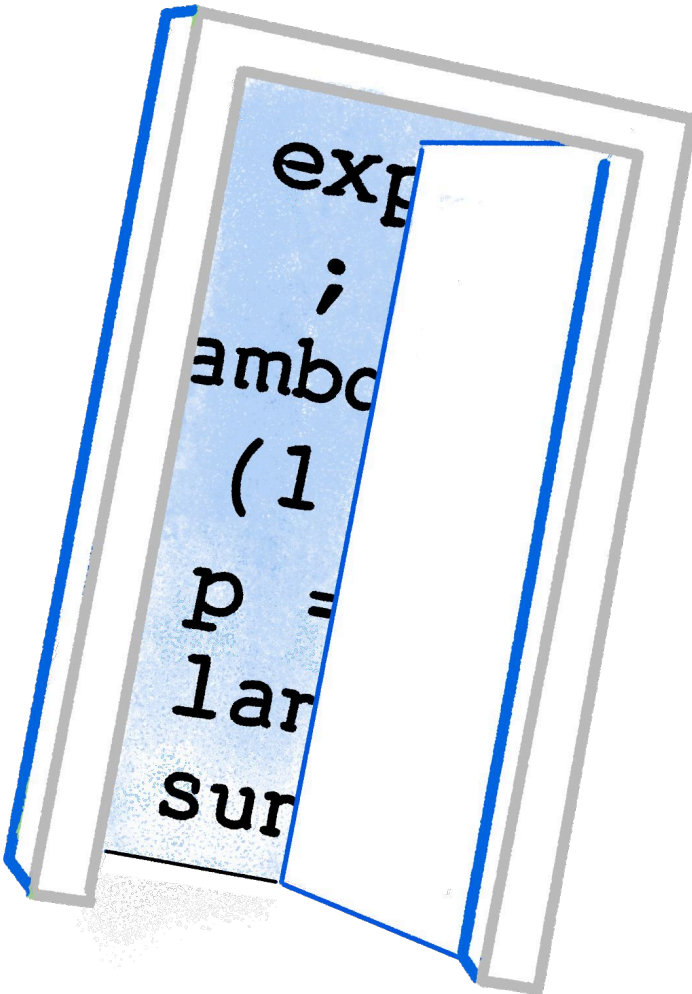
Prompting Heuristics

- Which heuristics should guide our iterative process for prompting models to reliably produce our desired outputs

Advanced AI Coding Tools

- AI tools have become indispensable for software engineers, automating, and enhancing various aspects of coding, debugging, and system optimisation. This section will introduce you to cutting-edge tools like AI-powered code generation, automated refactoring, and testing frameworks, as well as tools for enhancing productivity, collaboration, and performance tuning. By mastering these tools, you can streamline your development workflow, reduce errors, and significantly increase your productivity in building and deploying AI-driven applications, whether it's in your day job, or hacking on your own projects and startup.





You'll dive deep into:

Industry-Specific AI/ML Applications

- How AI and ML are applied across different industries and domains, including healthcare, finance, manufacturing, retail, & many more. Employers are now looking for the modern software engineer who can also implement AI/ML, given that many software engineers lack in this area. We'll learn how to identify opportunities to leverage AI/ML in your field, assess readiness, and implementation, from automating repetitive tasks to developing predictive models that inform decision-making and customer engagement strategies.

Ethics in AI

- How to identify and mitigate bias, fairness, and transparency issues in AI models.
- How to balance privacy with AI performance, and assess the societal impact of AI to ensure responsible use. Given a spotlight on ethics in the industry, we'll learn how to flourish in times of ever-increasing change while abiding by and future-proofing against any ethical concerns using evergreen heuristics. Hear from experts of AI Ethics.

AI Leadership & Team Management

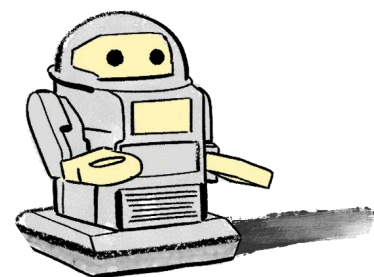
- How to lead AI/ML teams in times of change, while rising through the company, manage interdisciplinary efforts, and align projects with business objectives. Understanding what it takes to navigate the workplace and get promoted by those who've done it.

Retrieval-Augmented Generation (RAG) & Fine-Tuning

- How Retrieval-Augmented Generation (RAG) combines information retrieval with GenAI models to enhance accuracy and relevance, providing an effective and efficient way of programmatically scaffolding queries with additional context
- How to adapt models for certain tasks to particular domains, provoke a certain tone, and reduce toxicity and bias.

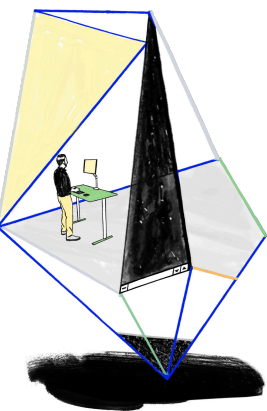
Practical AI/ML Project Implementation

- Apply what you've learned by building real-world projects from scratch with development methods that allow you to build impactful AI-driven applications and showcase your new skills.





Learning

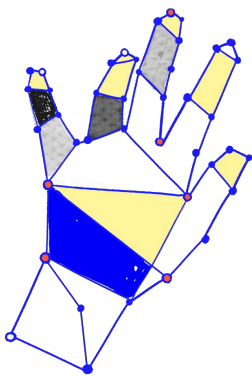
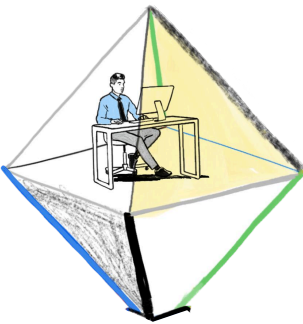


STAY CURRENT

Learning cutting-edge AI/ML techniques such as LLMs, RAG, and MLOps to broaden your horizons and augment your toolkit.

LEADERSHIP DEVELOPMENT

Go beyond AI tools to lead AI-driven projects within your organizations, fostering leadership capabilities in a technical environment.



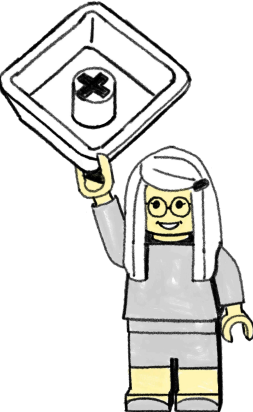
PRACTICAL APPLICATION

Work on real-world projects to learn how to apply AI/ML skills directly to your job by enhancing your ability to build and improve products using AI.

Career

ADVANCE YOUR CAREER

The program is designed for mid-to-senior-level software engineers, positioning you for leadership roles in AI/ML projects.



DEVELOP YOUR PORTFOLIO

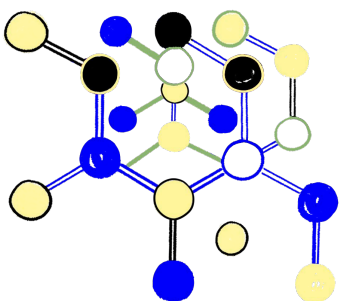
As you complete your practical AI/ML project, you will have work to showcase to potential employers to validate your skills and improve job prospects.

BE READY FOR THE GROWING MARKET

The job market for AI/ML experts is growing rapidly. According to the World Economic Forum, AI/ML roles have seen a 74% annual growth rate over the last four years.



Wider impact

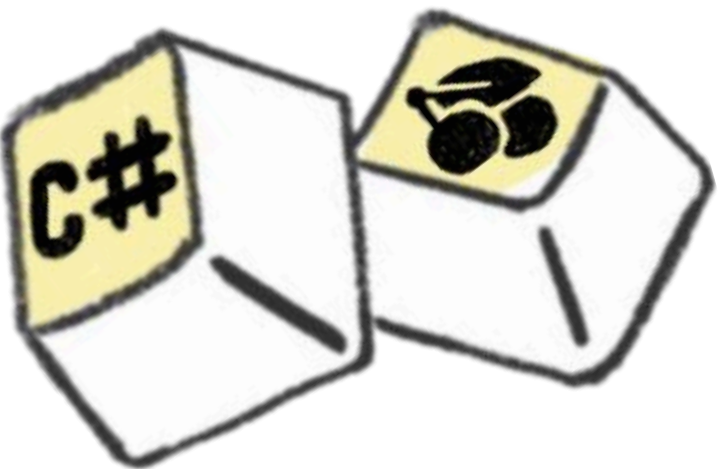


CROSS-INDUSTRY APPLICATION

Contribute to solving broad challenges, such as climate change and financial innovation, through the development of AI solutions.

BUILDING RESPONSIBLE AI

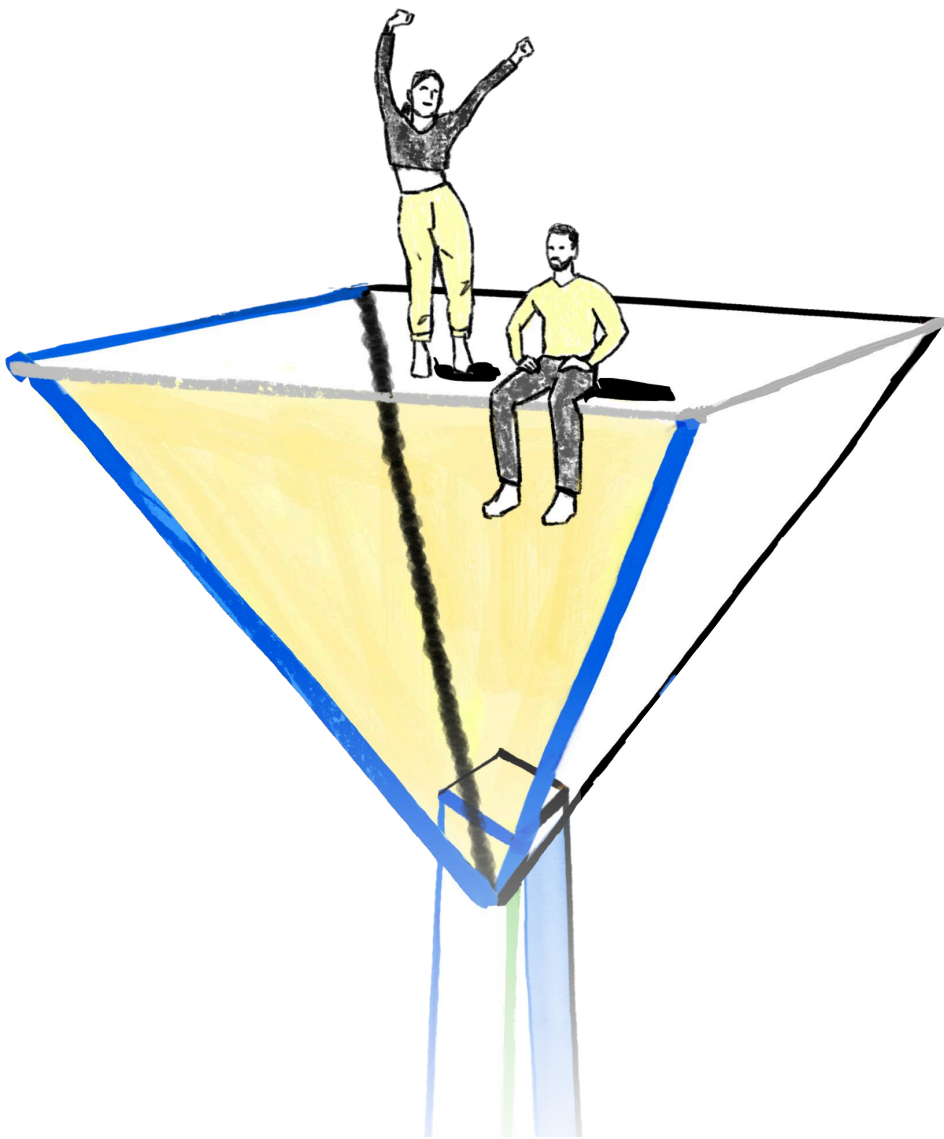
Integrate responsible AI practices, helping to reduce bias and build fairer, more ethical AI systems, in alignment with the global increase of AI regulation.





Invest in becoming the modern Software Engineer

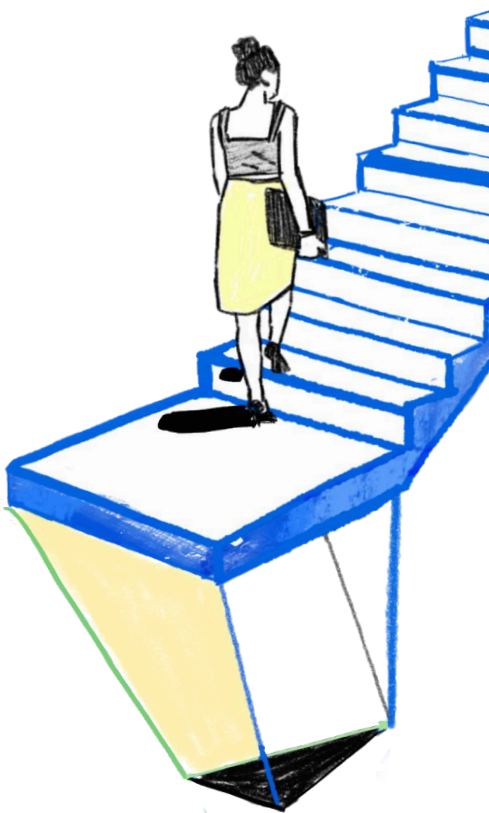
By integrating technical know-how, hands-on projects, and community for continuous learning, this 4-week program ensures that you are well-equipped to navigate the complexities of modern AI applications and drive impact in your organization.



\$4,595

PAYMENT PLANS

Flexible payment plans are offered to make the program more accessible, allowing you to spread the cost for your investment over 3 months.



Alumni-Only Offer

\$895*

* As the content in Part 1: Foundational Technical Skills is also now covered in the Software Engineering Immersive, all alumni who completed the Software Engineering Immersive will receive Part 1 at no charge, along with a discounted rate for the rest of the program.

SCHOLARSHIPS

If you are a Software Engineering Immersive alum, a limited number of scholarships are available based on your engagement with the Codesmith community. This is to ensure accessibility and support to those dedicated to advancing their careers in AI & ML. These are offered on a first-come, first-served basis.



Application process

1 Check your eligibility for join

You are either a Codesmith Alum who **completed the Software Engineering Immersive program** or **You are mid-to-senior-level software engineer** proficient in at least one programming language.

If any of the above apply, you are ready to apply.

2 Apply here

You will be required to complete the application to provide all necessary information about yourself to be considered for the program. **After submitting your application, you will receive a confirmation email.** As soon as we receive your application, it will be carefully reviewed by our team.

3 Attend the interview

Once your application is reviewed, qualified candidates will be invited to an interview with our team. This interview is an opportunity to discuss your goals, experience, and fit for the program.

5

Prepare for the program

Upon confirmation of your attendance, you'll receive further details on how to get ready for the start of the program, including a selection of pre-course materials and setup requirements.

4

Decision & investment

After the interview, you will be notified of your application status. If successful, you'll be required to complete the payment to confirm your attendance in the program.



Ready to take the next step in your journey?

Start your application today and join a community of modern engineers who are shaping the future.

If you have any questions about this program or you would like to learn more, please drop us a line at hello@codesmith.io.

