

Added to the List

How to build technical domain expertise

Hina Sakazaki, LeadDev Live Fall 2021

What motivates you?

For me, it's:

- Growth
- Excitement
- Belonging

**And when you realize that your
needs are not being met...**

Senior Software Engineer, Machine Learning, Cloud Healthcare

Minimum qualifications:

- Bachelor's degree or equivalent practical experience
- 5 years of experience with software development in one or more programming languages, and with data structures/algorithms
- 3 years of experience testing, maintaining and/or launching software products, and 1 year of experience with software design and architecture
- Experience implementing cloud-based data infrastructure

Preferred qualifications:

- Master's degree or PhD in Computer Science or related technical field
- 3 years of experience with machine learning algorithms and tools (e.g., tensorflow), artificial intelligence, deep learning and/or natural language processing
- 1 year of experience in a technical leadership role



2015
Graduated UC Berkeley
Joined Zynga

2020
Left YouTube
Trust & Safety

2018
Joined YouTube
Trust & Safety

February 2020

Joined a small start-up like team in Google Research working on an ML service for game developers with **no professional ML or Research experience**

June 2021

- Published findings and Open Source Project
- Started as ML Infrastructure Engineer for a Natural Language Understanding AI team in Cloud Dialogflow

**Each experience leads to the next,
acting as concrete proof of your abilities.**

Technical domain expertise is something that can be built through goal-setting, achieving concrete bite-sized pieces of work, consistently.

Approaching Opportunities

- Set goals of what you hope to achieve
 - Gather data and align it with your goals
- Reflect your own history with the possibilities
 - Hobbies, classes that were interesting, school projects, side projects, work projects, experience with dealing with family and friends...

Software Engineer, Machine Learning for Game Developers

Minimum qualifications:

- **I have a** Bachelor's degree in Computer Science or equivalent practical experience.
- **I don't have** 2 years of work or educational experience in Machine Learning or Artificial Intelligence, **but I did take one AI class in college and I did a personal ML-ish project to implement a Markov chain for generating "fake inspirational quotes"**
- **I have** 1 year of relevant work experience, including software development. (**I actually had 4 years**).
- **I have** Experience with one or more general purpose programming language including but not limited to: Java/C++ or Python.

Preferred qualifications:

- **I had** Experience implementing cloud-based data infrastructure.
- Do not need to be avid gamers, but excited about building developer-facing software and collaborating with game developers. **I was an avid gamer and worked in mobile gaming before.**



* Disclosure: Reconstructed from memory and looking at other job postings

Software Engineer, Machine Learning for Game Developers

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- **I have 1 year of relevant work experience, including software development. (I actually had 4 years).**
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Software Engineer, Machine Learning for Game Developers

- **I had** Experience implementing cloud-based data infrastructure.
- Do not need to be avid gamers, but excited about building developer-facing software and collaborating with game developers. **I was an avid gamer and worked in mobile gaming before.**

Senior Software Engineer, Machine Learning, Cloud Healthcare

Minimum qualifications:

- **I have** Bachelor's degree or equivalent practical experience, **from going to college for 3 years and then dropping out for financial reasons, and self-teaching myself coding and attending a bootcamp**
- **I have** 5 years of experience with software development in one or more programming languages, and with data structures/algorithms — **I've worked in Java, C#, and C++, making web apps and backends for 10 years in two startups.**
- **I have** 3 years of experience testing, maintaining and/or launching software products, and 1 year of experience with software design and architecture — **I've actually been designing software for more than 6 years!**
- **I have** experience implementing cloud-based data infrastructure — **Yes, I've done this for our backend!**

Preferred qualifications:

- **I don't have** a Master's degree or PhD in Computer Science or related technical field, **but I've been working as a Software Engineer for 10 years.**
- **I have less than 3** years of experience with machine learning algorithms and tools (e.g., tensorflow), artificial intelligence, deep learning and/or natural language processing **from taking classes, participating in the Machine Learning interest communities, taking on some small side projects that does use a Tensorflow library, TF-Agents.**
- **I have more than 1** year of experience in a technical leadership role - **5 years as Tech Lead!**



Senior Software Engineer, Machine Learning, Cloud Healthcare

- **I have Bachelor's degree or equivalent practical experience, from going to college for 3 years and then dropping out for financial reasons, and self-teaching myself coding and attending a bootcamp**
- **I have less than 3 years of experience with machine learning algorithms and tools (e.g., tensorflow), artificial intelligence, deep learning and/or natural language processing from taking classes, participating in the Machine Learning interest communities, taking on some small side projects that does use a Tensorflow library, TF-Agents.**
- **I have more than 1 year of experience in a technical leadership role - 5 years as Tech Lead!**

Approaching Opportunities

- Verify if the goals you wanted to achieve is achievable with this opportunity
 - “Want to deepen understanding in Technology X” → Ask team and hiring manager about roadmaps, engineering culture and attitudes towards new ideas, how your interest might fit
 - “Be successful” → Assess whether opportunity is in the right condition for success

Relationship is key!



Once you land the opportunity, take advantage of it to build more technical expertise.

Picking up domain expertise

- Orient around a goal
- Connect the dots
- Know what you don't know
- Don't stress out doing things that don't work for you

Consistently reinforce the fact that you're able to learn new things to achieve goals



Owning and growing the expertise

- Identify problems
 - Software Engineering is a loop of problem solving and problem identification
- Expand your horizons
- Teach others

Form habits that allow you to be consistently growing



Technical domain expertise is not something you achieve, but something you continue to build iteratively.

Achieving small, concrete goals, and doing that over and over again gives you the confidence to keep doing more.

Thank you!

My project mentioned:

Quickly Training Game-Playing Agents with Machine Learning

Illustrations: www.irasutoya.com