

Sampson Gao

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EDUCATION

Bachelor of Applied Science and Engineering with Honors

Sep 2013 - May 2018

- University of Toronto, Department of Electrical and Computer Engineering
- Major in Computer Engineering, CGPA 3.72
- Key Courses: Engineering Strategies and Practice, Algorithm and Data Structure, Operating System, Compilers and Interpreters Computer Security, Distributed System, Inference Algorithm and Machine Learning

TECHNICAL SKILLS

- Languages: C, C++, Java, Python, SQL, JavaScript, TypeScript
- Backend: RESTful APIs, Node.js, Express.js, FastAPI, Guice
- AWS: Lambda, ECS, API Gateway, ALB, NLB, DynamoDB, S3, Redshift, SQS, SNS, CDK
- Frontend: React.js, Next.js, Tailwind CSS
- Tools: Docker, Git, CI/CD

WORK EXPERIENCE

SDE II on Advertising Media Planning Team, Amazon

Jan 2022 - Present

- Architected and delivered Amazon Media Planning Reach API from scratch, enabling HoldCos and agencies managing billions in ad spend to integrate Amazon Ads planning capabilities into their workflows, capturing market share previously lost to competitors
- Launched incremental reach forecasting API enabling advertisers to evaluate STV vs LTV performance, driving strategic budget allocation toward Amazon streaming channels
- Derived mathematical approximation for reach curve generation algorithm, achieving asymptotically equivalent results while reducing runtime from 3s to 0.018s (~167x speedup)
- Solved critical GNN training bottleneck by designing subgraph-sampling approach, reducing training time from >2 days to 7 hours
- Reduced main forecasting workflow latency by 62% through comprehensive refactoring: eliminated redundant Step Functions orchestration, maximized async concurrency with custom pooling
- Drove technical direction as sole L5 engineer on newly formed team, mentoring 4 engineers to L5 promotion while establishing collaborative team culture focused on learning and high engineering standards

Software Developer on Watson Machine Learning Team, IBM Canada

Oct 2019 - Dec 2021

- Architected (among tech leaders) and developed the integration of platform job in deployment space
- Led the development of feature requests to enhance user experience and product functionalities
- Enhanced UI quality and stability by using proper CSS styles and practices
- Initiated refactor efforts for better consistency and maintainability of code base
- Implemented standardized response handler to reduce duplicated error handling code in backend

Compiler Optimization Developer on NodeJS/V8 team, IBM Canada

May 2016 - Sep 2017

- Optimized V8 JavaScript Engine Turbofan Compiler runtime performance on S390 by 2%
- Committed bug fixes to Google Chromium Project for V8 on PPC and S390
- Prototyped Node API for providing native modules ABI compatibility across different versions of NodeJS, abstracting interactions with JavaScript VM (V8, ChakraCore, and etc.) and Asynchronous I/O library (libuv)

Web Developer, ThinkNation Inc.

May 2015 - August 2015

- Developed a platform where programmers get tests on their programming abilities and employer get candidates test scores which allow for pre-filtering candidates for technical interview
- Designed new layout for coding questions to be more user friendly
- Proposed and built a page for practice questions which attracted more than 400 new users on the first day of launch