

Who's Who?

This course is made possible by instructors from academia and industry who collaboratively designed this course to maximize your learning experience. Your lead instructors are Prof. Vijay Janapa Reddi from Harvard University and Lara Suzuki, who is the Head of Data/AI Practice lead for the UK and Ireland at Google Cloud.

Prof. Vijay Janapa Reddi and Dr. Lara Suzuki designed the course together because they realized that effectively expanding access to machine learning requires the expertise of both academia and industry. Academia is traditionally strong in structured teaching: it creates in-depth, rigorous curricula to impart a deep understanding of a field. The industry is more pragmatic, developing the skills necessary for employment. These approaches are complementary and we wanted to bring the best of both worlds. As you step through the course, you will see how we bring academic concepts together with the real-world needs of the industry to help you learn how to design solutions to improve the world around you! We also have Susan Kennedy who is a philosopher from the Harvard Embedded EhiCS program that advocates for ethical reasoning as an essential skill for today's computer engineers and scientists esp. in ML!

We give much credit to the hard-working staff who have produced many supplementary materials, ranging from developing instructive readings to creating case studies for your benefit based on countless hours of interviews and discussions with industry experts. To this end, we hope you enjoy the vast breadth of the material we have condensed into this online course.

Instructors



Prof. Vijay Janapa Reddi

*Associate Professor in the John A. Paulson School of Engineering and Applied Sciences
Harvard University*

Bio: Vijay Janapa Reddi is an Associate Professor at Harvard University, VP and a founding member of MLCommons (mlcommons.org), a nonprofit organization aiming to accelerate machine learning (ML) innovation for everyone. He also serves on the MLCommons board of directors and is a Co-Chair of the MLCommons Research organization. He led the MLPerf Inference ML benchmark for datacenter, edge, mobile and IoT systems. Before joining Harvard, he was an Associate Professor at The University of Texas at Austin in the Electrical and Computer Engineering department. His research sits at the intersection of machine learning, computer architecture and runtime software. He specializes in building computing systems for tiny IoT

	<p>devices, as well as mobile and edge computing. Dr. Janapa-Reddi is a recipient of multiple honors and awards, including the National Academy of Engineering (NAE) Gilbreth Lecturer Honor, IEEE TCCA Young Computer Architect Award, Intel Early Career Award, Google Faculty Research Awards. He has received Best Paper Awards at various top conferences including the Design Automation Conference (DAC), International Symposium on Microarchitecture (MICRO), International Symposium on High-Performance Computer Architecture (HPCA) and IEEE's Top Picks in Computer Architecture. He has been inducted into the MICRO and HPCA Hall of Fame. He is passionate about widening access to applied machine learning for STEM, Diversity, and using AI for social good. In addition to the TinyML course series, he helped design the Austin Hands-on Computer Science (HaCS) deployed in the Austin Independent School District for K-12 CS education. Dr. Janapa-Reddi received a Ph.D. in computer science from Harvard University, an M.S. from the University of Colorado at Boulder and a B.S from Santa Clara University.</p>
	<p>Dr. Lara Suzuki</p> <p>Head of Data/AI Practice Google</p> <p><i>Bio:</i> Dr. Larissa Suzuki is the Lead of Data and AI Practice for Google Cloud, and a Google AI Principles Ethics Fellow. She is an award-winning computer scientist, author, engineer, entrepreneur, philanthropist and inventor. She holds the titles of EUR ING, BSc, MPhil, Ph.D., CEng, FIET, FRSA, AFHEA, IntPE. She also holds the Freedom of the City of London, is a Freeman of the Worshipful Company of Engineers and an Engineer member of the International Engineering Alliance. She is the Chair of the Tech London Advocates Smart Cities Group, a reviewer of grant/awards of the Royal Academy of Engineering, the IET, and the ACM. She is a Council Member of the Queen Elizabeth Prize for Engineering Ambassadors, a Committee member of the Grace Hopper Celebration and the ABIE Awards, an Ambassador of the AllBright Club, and has served as an ambassador for many other technology/educational organizations. Her career includes 16 years of working in engineering. She works on the Interplanetary Internet on cloud computing. Her continuing academic work is at University College London, the University of Quebec and the University of Oxford where she serves as an Associate Professor in Computer Science and a Guest Lecturer. She has received numerous awards and recognitions for her contributions to the industry and international science. She</p>

is a keynote speaker and an open-source contributor.

Guest Instructor



Prof. Susan Kennedy

Assistant Professor of Philosophy

Santa Clara University

Professor Susan Kennedy is an Assistant Professor of Philosophy at Santa Clara University as an Assistant Professor of Philosophy. Prior to this, she was a postdoctoral fellow at Harvard University where she worked with the Embedded EhiCS team to integrate ethical reasoning into the computer science curriculum. Her primary research areas are ethics, applied ethics, and social/political philosophy, with a particular focus on emerging technologies. She received her Ph.D. in philosophy from Boston University and a certificate in bioethics from Yale's Interdisciplinary Center for Bioethics summer program. In August 2022, she will be completing a visiting research residency at the Brocher Foundation in Switzerland.

Staff and TAs

We are aided by a dedicated team of staff and teaching assistants who helped us with the overall organization and structure of the course and delivery of the course content.



Brian Plancher

*Staff Lead and Head Teaching Assistant
Harvard University*

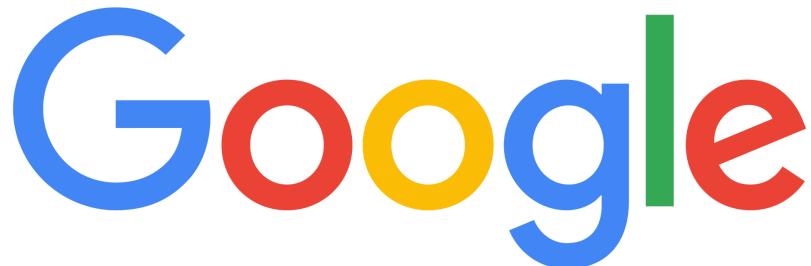
Brian is a Ph.D. Candidate studying Robotics at Harvard University working with Vijay Janapa Reddi and Scott Kuindersma. He wants to improve the accessibility of STEM education. As such, he enjoys teaching and designing new interdisciplinary, project-based, open-access courses that lower the barrier to entry of cutting-edge topics like TinyML. His research is focused on developing and implementing algorithms for dynamic motion planning and control of robots by exploiting both the mathematical structure of algorithms and the design of computational platforms. As such his research is at the intersection of Robotics and Computer Architecture / Embedded Systems, Numerical Optimization,

	<p><i>and Machine Learning. He enjoys spending his free time with his wife, daughter, and puppy, and ski racing in the winters.</i></p>
	<p>Colby Banbury</p> <p><i>Teaching Assistant Harvard University</i></p> <p><i>Colby is a Ph.D. Candidate at Harvard University researching TinyML systems under the supervision of Vijay Janapa Reddi. Colby's research interests are tools for automated co-design of TinyML systems and making cutting-edge ML more accessible. He enjoys rock climbing and hiking.</i></p>
	<p>Dhilan Ramaprasad</p> <p><i>Teaching Assistant Harvard University</i></p> <p><i>Dhilan is an undergraduate at Harvard University studying Electrical Engineering and Computer Science. He serves on the teaching staff of various computer architecture courses. Outside the classroom, Dhilan enjoys making short films and taking part in political advocacy work.</i></p>
	<p>Matthew Stewart</p> <p><i>Teaching Assistant Harvard University</i></p> <p><i>Matthew is a Ph.D. Candidate at Harvard University studying Engineering Sciences with a Data Science secondary. His research is at the intersection of atmospheric chemistry and machine learning, developing intelligent chemical sensing systems to study the tropical Amazonian rainforest. He enjoys playing guitar and is an aspiring contestant for the Great British Baking Show.</i></p>

	<p>Maximilian Lam</p> <p>Teaching Assistant Harvard University</p> <p><i>Max is a PhD candidate at Harvard University. His research focuses on the intersection of machine learning, distributed systems, and privacy.</i></p>
	<p>Mark Mazumder</p> <p>Teaching Assistant Harvard University</p> <p><i>Mark is PhD student in the Harvard Edge Computing Lab under the supervision of Prof. Vijay Janapa Reddi. Previously, he worked on machine learning and computer vision research at MIT Lincoln Laboratory.</i></p>

Industry Supporters

We received a lot of support from a variety of different global companies and foundations who have helped us design the course and its many topics, as well as helped us develop Colabs and case studies of real world applications of MLOps for TinyML.





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