Stanford

Thierry Tambe

Assistant Professor of Electrical Engineering and, by courtesy, of Computer Science

Bio

BIO

Thierry Tambe is an Assistant Professor of Electrical Engineering and, by courtesy, of Computer Science, and the William George and Ida Mary Hoover Faculty Fellow at Stanford University. His research centers on co-designing algorithms and hardware—from high-level models down to custom silicon—to enable efficient execution of AI and data-intensive workloads, with memory efficiency as a central theme. His work has been recognized through an NSF CAREER Award, the inaugural Google ML and Systems Junior Faculty Award, an NVIDIA Graduate PhD Fellowship, an IEEE SSCS Predoctoral Achievement Award, and several distinguished paper awards. Previously, Thierry was a visiting research scientist at NVIDIA and an engineer at Intel. He received a B.S. and M.Eng. from Texas A&M University, and a PhD from Harvard University, all in Electrical Engineering.

ACADEMIC APPOINTMENTS

- Assistant Professor, Electrical Engineering
- Assistant Professor (By courtesy), Computer Science

PROGRAM AFFILIATIONS

- Stanford SystemX Alliance

PROFESSIONAL EDUCATION

- PhD, Harvard University , Electrical Engineering (2023)

Teaching

COURSES

2025-26

- Design Projects in VLSI Systems I: EE 272 (Win)
- Differentiated Memory Systems: EE 392C (Spr)
- Hardware Accelerators for Machine Learning: CS 217 (Win)
- Introduction to VLSI Systems: EE 271 (Aut)

2024-25

- Digital Systems Architecture: CS 180, EE 180 (Win)
- Introduction to VLSI Systems: EE 271 (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Po-Han Chen, Anna Kasperovich, Shuhan Liu, Junrui Lyu, Yuchen Mei, David Shim, Jeffrey Yu

Doctoral Dissertation Advisor (AC)

Wonsuk Jang, Yasmine Omri

Master's Program Advisor

Jesse Fonseca, Zion Kang, Josh Kirshenbaum, Henok Tewolde

Doctoral (Program)

Vishal Canumalla, Tun-Yu Chang, Yasmine Omri

Publications

PUBLICATIONS

- **EPOCHS-1: A 12 nm Highly Heterogeneous Open-Source SoC With Distributed Coin-Based Power Management and Integrated Hybrid Voltage Regulation** *IEEE JOURNAL OF SOLID-STATE CIRCUITS*
  Zuckerman, J., Cochet, M., Cassel dos Santos, M., Jens Loscalzo, E., Swaminathan, K., Jia, T., Giri, D., Tambe, T., Jun Zhang, J., Buyuktosunoglu, A., Chiu, K., Di Guglielmo, G., Mantovani, et al
  2025

- **Towards Memory Specialization: A Case for Long-Term and Short-Term RAM**
  Li, P., Abdurrahman, M., Cleaveland, R., Legtchenko, S., Levis, P., Stefanovici, I., Tambe, T., Tennenhouse, D., Trippel, C., Wong, H., ACM
  ASSOC COMPUTING MACHINERY.2025: 27-36

- **BlockDialect: Block-wise Fine-grained Mixed Format Quantization for Energy-Efficient LLM Inference**
  Jang, W., Tambe, T.
  edited by Singh, A., Fazel, M., Hsu, D., Lacoste-Julien, S., Berkenkamp, F., Maharaj, T., Wagstaff, K., Zhu, J.
  JMLR-JOURNAL MACHINE LEARNING RESEARCH.2025: 26925-26945

- **Application-level Validation of Accelerator Designs Using a Formal Software/Hardware Interface** *ACM TRANSACTIONS ON DESIGN AUTOMATION OF ELECTRONIC SYSTEMS*
  Huang, B., Lyubomirsky, S., Li, Y., He, M., Smith, G., Tambe, T., Gaonkar, A., Canumalla, V., Cheung, A., Wei, G., Gupta, A., Tatlock, Z., Malik, et al
  2024; 29 (2)

- **JointNF: Enhancing DNN Performance through Adaptive N:M Pruning across both Weight and Activation**
  Zhang, S., Tambe, T., Wei, G., Brooks, D., ACM
  ASSOC COMPUTING MACHINERY.2024

- **A 12nm 18.1TFLOPs/W Sparse Transformer Processor with Entropy-Based Early Exit, Mixed-Precision Predication and Fine-Grained Power Management** *IEEE International Solid-State Circuits Conference (ISSCC)*
  Tambe, T., Zhang, J., Hooper, C., Jia, T., Whatmough, P., Zuckerman, J., Dos Santos, M., Loscalzo, E., Giri, D., Shepard, K., Carloni, L., Rush, A., Brooks, et al
  2023

- **A 16-nm SoC for Noise-Robust Speech and NLP Edge AI Inference With Bayesian Sound Source Separation and Attention-Based DNNs** *IEEE JOURNAL OF SOLID-STATE CIRCUITS*
  Tambe, T., Yang, E., Ko, G. G., Chai, Y., Hooper, C., Donato, M., Whatmough, P. N., Rush, A. M., Brooks, D., Wei, G.
  2023; 58 (2): 569-581

- **GoldenEye: A Platform for Evaluating Emerging Numerical Data Formats in DNN Accelerators**
  Mahmoud, A., Tambe, T., Aloui, T., Brooks, D., Wei, G., IEEE
  IEEE.2022: 206-214

- **ASAP: Automatic Synthesis of Area-Efficient and Precision-Aware CGRAs**

Tan, C., Tambe, T., Zhang, J., Fang, B., Geng, T., Wei, G., Brooks, D., Tumeo, A., Gopalakrishnan, G., ACM
ASSOC COMPUTING MACHINERY.2022

- **EdgeBERT: Sentence-Level Energy Optimizations for Latency-Aware Multi-Task NLP Inference**
  Tambe, T., Hooper, C., Pentecost, L., Jia, T., Yang, E., Donato, M., Sanh, V., Whatmough, P. N., Rush, A. M., Brooks, D., Wei, G., ACM
  ASSOC COMPUTING MACHINERY.2021: 830-844

- **Robomorphic Computing: A Design Methodology for Domain-Specific Accelerators Parameterized by Robot Morphology**
  Neuman, S. M., Plancher, B., Bourgeat, T., Tambe, T., Devadas, S., Reddi, V., Assoc Comp Machinery
  ASSOC COMPUTING MACHINERY.2021: 674-686

- **A 25mm² SoC for IoT Devices with 18ms Noise-Robust Speech-to-Text Latency via Bayesian Speech Denoising and Attention-Based Sequence-to-Sequence DNN Speech Recognition in 16nm FinFET**
  Tambe, T., Yang, E., Ko, G. G., Chai, Y., Hooper, C., Donato, M., Whatmough, P. N., Rush, A. M., Brooks, D., Wei, G.
  edited by Fujino, L. C., Anderson, J. H., Belostotski, L., Dunwell, D., Gaudet, Gulak, Haslett, J. W., Halupka, D., Mirabbasi, S., Smith, K. C.
  IEEE.2021: 158-+

- **Algorithm-Hardware Co-Design of Adaptive Floating-Point Encodings for Resilient Deep Learning Inference**
  Tambe, T., Yang, E., Wan, Z., Deng, Y., Reddi, V., Rush, A., Brooks, D., Wei, G., IEEE
  IEEE.2020

- **A 3mm² Programmable Bayesian Inference Accelerator for Unsupervised Machine Perception using Parallel Gibbs Sampling in 16nm**
  Ko, G. G., Chai, Y., Donato, M., Whatmough, P. N., Tambe, T., Rutenbar, R. A., Brooks, D., Wei, G., IEEE
  IEEE.2020

- **MASR: A Modular Accelerator for Sparse RNNs**
  Gupta, U., Reagen, B., Pentecost, L., Donato, M., Tambe, T., Rush, A. M., Wei, G., Brooks, D., IEEE Comp Soc
  IEEE COMPUTER SOC.2019: 1-14