Kalyan Perumalla, PhD (aka **KP**) | **US Citizen**

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OBJECTIVE To help manage increasingly large, high-risk, advanced directions in cross-cutting areas of **large-scale computing** across hardware, software, middleware, and applications.

EXPERIENCE 27+ years in scalable computing R&D across national labs, universities, and government. Hands-on supercomputing software and application development. Expertise spanning computing theory, paradigms, software, middleware, applications, and GPU experience pre-dating CUDA. Successful in varied roles including Manager, Researcher/Scientist, Project Manager, Principal Investigator, Professor, Scrum/Agile Developer, Mentor, Advisor, Book Author. Leading community in professional societies, assessment boards, journal boards, international conferences. R&D support competitively secured from NSF, DARPA, DHS, ARL, DOE, industry, foundations, and others.

BIO Kalyan Perumalla is a Federal Program Manager with a diverse $100+M portfolio in Advanced Scientific Computing Research (ASCR), Office of Science, within the U.S. Department of Energy (DOE). Prior to DOE, he spent 17 years in research and managerial roles up to Distinguished Research Staff Member at the Oak Ridge National Laboratory (ORNL). Prior to that, he held appointments for 8 years at Georgia Tech (GT). He was a Fellow of the Institute of Advanced Study at Durham University, UK; served as joint full professor in Industrial and Systems Engineering at the University of Tennessee (UTK); and as adjunct faculty at Georgia Tech and the University of Nebraska (UNL). He was elected chair of the Association for Computing Machinery (ACM) Special Interest Group in Simulation (SIGSIM) for 2020-2024.

PROGRESSION (MOST-RECENT FIRST)

Budget Managed	Period	Institution Affiliations	Roles Fulfilled	Technical R&D Areas Covered	Oversight Scope	Selected Outcomes
$100+ million	2023-Now	U.S. DOE Office of Science ASCR	Federal Program Manager	HPC/Exascale/Supercomputing, AI Scaling/Software, SBIR, SciDAC, Basic Computer Science, Quantum Computing & Networking	50+ PI/Co-PIs (national lab researchers, university faculty & staff, entrepreneurs)	12 funding calls, 3 large PI Meetings, 4 Workshops, 5+ Agency Reports
$10+ million	2010-2022	ORNL, UTK, UNL, ACM, Durham U.	Distinguished R&D Staff, Group Leader, Professor, SIG Chair, Fellow	HPC/Exascale/GPUs, AI, M&S, Reversible Computing, Math Solvers, Cyber-physical Systems, Energy Grid, Transportation, Epidemiology	10+ R&D staff, postdocs, interns, faculty on sabbatical	150+ papers, 5 best paper awards, book, career award, keynotes, C++/MPI HPC software, demos
$1+ million	2000-2009	ORNL, GT	Senior R&D Staff, Adjunct Professor	Reversible Computing, Discrete Event and Agent-based Simulation, HPC, VMs	5+ R&D staff, students	
$0.1+ million	1997-1999	GT	Research Faculty Member	Massive Network Simulation, Combinatorial Optimization, Defense M&S Interoperability Standards	5+ students	C/C++/Java parallel S/W world-wide releases

EDUCATION AND TRAINING

- Ph.D., Computer Science (Georgia Tech), 1999
- M.S., Computer Science (UCF), 1993
- B.E., Mechanical Engineering (Osmania), 1991
- Certified Agile SAFe Scrum Master, Product Owner, 2022

PUBLICATIONS AND PRESENTATIONS

- Seminal book on Reversible Computing
- 150+ articles (journal, conference, books, reports)
- H-index 34 (Google Scholar)
- ORCID | IEEE Xplore | ACM DL | Github | kalper.net/kp/pubs
- 100+ presentations, 30+ invited talks, 10+ tutorials

PROJECTS AND SOFTWARE

- ExaSGD, ReveR-SES, DarkNet, Deep CYBERIA, CYVET, ZeroIn, NetWarp, Kensor, NAERM, HELICS, DTF
- Time Warp, CloneX, GraphGen, µsik, BLOCKTRI, and more

AWARDS

- DOE Early Career Award 2010 (first cohort of DOE/ASCR)
- 5 best paper awards, and 3 best paper finalists; scientific achievement & significant Event awards; R&D100 finalist
- Former programming contest winner, coach

SOFTWARE DEVELOPMENT EXPERIENCE

- HPC runtimes on 1000s of GPUs, 100000s of CPU cores; asynchronous parallel software systems
- C/C++, MPI, Java, FORTRAN, Python, shell, JavaScript, PHP, MySQL, Rust, Nodejs, React, CUDA, OpenMP, Git, Vi(!), JIRA, Confluence, Spack, etc.
- VM, Hypervisor, Containers, Linux system administration, shell scripting
- Debug, test, profile, optimize, release, maintain
- Domain-specific languages, compilers