SUYASH **TANDON,** Ph.D.

U.S. Citizen, Head of Hypersonic Reentry System Development
Contact Information: suyashtn@umich.edu | (734) 904-9987

SUMMARY

- 10+ years of technical evolution, from founding-stage leadership to exascale execution, architecting vehicle-level systems from zero-to-one, and translating complex physics into $15M+ roadmaps.
- Deep expertise in aerothermodynamics, TPS, and HPC optimization, bridging high-fidelity simulation with rapid manufacturing to deliver mission-critical, flight-ready hardware.
- Decisive Technical Authority focussed on capital-efficient development, proven success in scaling high-performance teams, owning system risk posture, and securing non-dilutive funding.

EDUCATION

University of Michigan, Ann Arbor, MI

Ph.D., Mechanical Engineering and Scientific Computing	01/2016 - 05/2020
M.S., Mathematics	09/2019 - 05/2020
M.S.E., Mechanical Engineering	01/2014 - 08/2015

AIAA Certificate

Hypersonic Aerothermodynamics	2025
Hypersonic Propulsion Concepts	2024
Hypersonic Flight Vehicle Design and Performance Analysis	2023

University of Mumbai, Mumbai, India

B.E. Production Engineering	08/2008 - 06/2012

WORK EXPERIENCE

Reditus Space, Inc., Seattle, WA 04/2025 - present

Head of Reentry System Development

- Architected vehicle-level reentry systems from zero-to-one; led interdisciplinary optimization of aero, thermal, and structural budgets to validate mission-critical performance and manufacturability.
- Owned technical risk posture and vehicle roadmap; chaired design reviews and established the V&V frameworks required to ensure flight-readiness across all hypersonic sub-systems.
- Secured $250k Navy STTR (PI) and authored technical proposals for $15M+, translated complex engineering milestones into high-value government contracts and funding strategies.
- Built and scaled a high-performing engineering team from the ground up; established the technical standards, execution processes, and mentoring pipelines essential for an early-stage startup.

Blue Origin, LLC., Seattle, WA 01/2025 - 03/2025

Multi-physics Simulations Engineer, Advanced Concepts & Enterprise Engineering

- Led technical maturation of the critical thermal/fluid interfaces for $35M NASA Tipping Point “Blue Alchemist” reactor; drove component architectures for Critical Design Review (CDR).
- Architected integrated multi-physics frameworks to bridge simulation with manufacturing data, enabling high-velocity trade studies for lunar ISRU configurations.

Advanced Micro Devices, Inc. (AMD), Austin TX 11/2020 - 12/2024

Sr. Member of Technical Staff Software System Design Eng.

- Recognized strategic contributor to AMD's HPC GPU portfolio - led CFD optimization and benchmarking efforts supporting initiatives across traditional HPC pursuits representing >$1B in infrastructure opportunities.
- Recipient of AMD Next 5% Award for contributions to the MI300A launch, including OpenFOAM optimization that became a flagship CFD workload for AMD's APU and exascale HPC positioning.
- Developed HPC performance optimization methodologies and benchmarking frameworks adopted across AMD GPU enablement efforts and international supercomputing collaborations.

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Scientific Computing and Flow Physics Lab, University of Michigan, Ann Arbor, MI 01/2014 - 05/2020
Graduate Student Research Assistant
- Performed computational fluid dynamics analysis to research innovative strategies to reduce the size and impact of flow separation region by as much as 50% in aerospace designs, nozzles, and similar applications.
- Development of an in-house high-fidelity simulation software in modern C++ based on high-order numerical methods to facilitate complex hypersonic flow simulations for aerothermodynamic analysis.
- Communicated research findings in 5+ conferences and workshops, and published 5+ scientific publications.

Los Alamos National Laboratory, Los Alamos, NM 06/2019 - 08/2019
Computational Sciences Graduate Intern
- Collaborated with computational physicists and domain scientists to implement new models and methods to study core-collapse supernovae by conducting large-scale computations on leadership-class HPC clusters.
- Refactored a C/C++ scientific code to reduce computational bottlenecks with multi-threading and GPU programming, and demonstrated code/stack portability on 3+ HPC clusters with competitive performance.

Godrej & Boyce Mfg. Co. Ltd., Mumbai, India
Graduate Engineer Trainee 07/2012 - 07/2013
- Handled end-to-end capital procurement of engineering machinery and developed cost models based on historic purchase dataset with annual net savings of more than 10%.

B.E. Project Trainee 11/2011 - 04/2012
- Investigated recurring and critical errors in the production pipeline by implementing failure mode and effects analysis (FMEA) to design a resilient process as part of the B.E. Thesis project, increasing the daily production by more than 40% and reduced lead time to order dispatch by 1.5x.

LEADERSHIP AND VOLUNTEERING

- Reviewed 5+ articles in scientific journal publications and 100+ submissions for conference and workshops.
- Invited to give 10+ talks on performance analysis and development tools for GPU programming on AMD systems, and conducted multiple training sessions.
- Held leadership roles in many student-led organisations & activities during graduate and undergraduate studies, including the UM Solar Car Project and the SAE Baja student competitions to design race cars.

HONORS AND AWARDS

- Next 5% Award, Advanced Micro Devices, Inc. (AMD) 2023
- Spotlight Awards (multiple), Advanced Micro Devices, Inc. (AMD) 2021 - 2024
- Michigan Institute for Computational Discovery & Engineering (MICDE) Fellowship 09/2019 - 09/2020
- Best poster, Los Alamos National Laboratory Student Symposium 08/2019
- Graduate Fellowship, Curadev Pharma Pvt. Ltd. 01/2016 - 01/2019
- Engineering Graduate Symposium Best Poster Award (3rd place), University of Michigan 10/2017

SKILLS

- Vehicle-level engineering, architecture, system trade studies, interdisciplinary optimization, technical risk ownership, design reviews, verification & validation (V&V)
- Aerothermodynamics, hypersonic flows, fluid mechanics, thermal analysis, coupled aero-thermal modeling, thermal protection system (TPS) design, aerospace manufacturing, ground test campaigns, FAA licensing
- OpenFOAM, ANSYS, Star-CCM+, LAURA, DPLR, FUN3D, Pointwise, TecPlot, Paraview
- Agile hardware development, rapid product development
- Machine learning, data analytics, model training, PyTorch, TensorFlow
- C/C++, Linux/Unix environment, Python, MATLAB, bash, shell scripting, CMake, Make, GPU programming
- LaTeX, technical documentation and communication, Git, Jira, Windchill, containers, Docker