VIKRAM V. GARG

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https://vikramvgarg.github.io/

SUMMARY

I am an experienced software engineer with a track record of delivering accessible and impactful technology to end-users.

AREAS OF EXPERTISE

Software Design & Development, Simulation & Statistics Algorithm Development

WORK HISTORY

Google (via Artech) April 2022 - Present
Senior Software Engineer

libMesh, a C++ Finite Element library (`libmesh.github.io`) September 2017 - March 2022
Simulation Algorithm & Software Developer (open source)

Esgee Technologies February 2019 - March 2020
Member of the Technical Staff

Massachusetts Institute of Technology, then UT Austin September 2012 - August 2017
Postdoctoral Associate

EDUCATION

The University of Texas at Austin

PhD, Computational and Applied Mathematics
Graduate School Continuing Fellowship

The University of Texas at Austin

Bachelor of Science, Aerospace Engineering
Bachelor of Science, Pure Mathematics
GPA: 3.97/4.00

WORK EXPERIENCE & ACHIEVEMENTS

Google
Learning from Demonstration Infrastructure

- Develop and maintain simulation infrastructure to underpin robot learning and evaluation.
- Evolve and implement requirements for sim infra by engaging with researchers, operators and engineers.
- Delivering a new platform to scale sim based data generation and relieve robot learning bottlenecks.

Esgee
Flow Solver Development & Leadership

- Enhanced Esgee's physics solver with complex flow capability to handle turbulent and swirling flows.
- Onboarded PhD hires via training projects which simultaneously expedited flow solver validation.

libMesh (open source)
Automatic Differentiation (AD) Package

- Developed algorithms, software design and testing regime for the inclusion of AD capability in a C++ simulation library.
- Community Impact: libMesh adjoint infrastructure used in higher level optimization libraries, doctoral research and top-tier publications.

Relevant artefacts:

· Implementing Generalized Adjoint Capabilities in libMesh, 14th USNCCM, 2017
· Relevant Git Pull Requests.
· State-of-the-art adjoint capability in libMesh, 2021
· Local Enhancement of Functional Evaluation and Adjoint Error Estimation for Variational Multiscale Formulations, Computer Methods in Applied Mechanics & Enginering, 2019.

SKILLS

Computer Languages	C++17, Python, MATLAB, R
Software & Tools	Github, Tecplot, Paraview, LaTeX

PROFESSIONAL SERVICE

- Co-organized mini-symposium "Adjoints in Computational Software" at USNCCM 2017.
- Reviewer for 'SIAM Journal on Scientific Computing', 'Computer Methods in Applied Mechanics & Engineering' , 'Computers & Mathematics with Applications' and 'Numerische Mathematik'.

Visa Status: U.S. Permanent Resident.