Shreyas Giridharan, PhD

Simulation Software Developer | PhD in Computational Geomechanics

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EXPERIENCE

Senior Researcher and Lecturer, University of Stuttgart
Germany *2023 – Present*
- Developed **high-performance software** for simulating large deformations and dynamic soil response in offshore geotechnics.
- Delivered a **95% accurate monopile prediction model** compared using field data from RWE AG.
- Automated simulation workflows using Python; reduced pre/post-processing time by up to **80%**.
- Principal lecturer for Computational Geomechanics in both **German and English**; consistently top-rated by students.
- Supervised 5+ Master's theses and mentored 10+ research assistants.

Skills: Scientific computing, Technical leadership, bilingual teaching, team supervision.

Researcher and PhD Candidate, University of Stuttgart
Germany *2017 – 2022*
- Contributed to 3 projects with 2 universities, and 5 industry partners (RWE, innogy, GuD Consult, itap, BioConsult).
- **Built open-source Python/MATLAB tools** for teaching advanced constitutive modelling.
- Ran finite element simulations in commercial tools to establish benchmark results for model validation.
- Delivered tutorials for 3 Master's-level courses; supervised 4 Master's theses.

Student Research Assistant, University of Stuttgart
Germany *2015 – 2016*
- **Implemented a novel multi-body contact algorithm** in an internal codebase
- Wrote subroutines to extend existing simulation codes for fluid-structure interaction.
- Implemented constitutive model subroutines in an in-house simulation code. .

Assistant Manager, Technical Sales and Marketing, Sundram Fasteners Limited
India *2012 – 2014*
- **Managed a $50M portfolio**; liaised with export clients in 5 countries.
- Led feasibility studies and cost-benefit analyses for customized prototypes.
- Served as the **primary contact for international clients** and prototype deliveries.

Skills: Stakeholder Engagement, Client Relations, Cross-Functional Collaboration.

EDUCATION

PhD (Dr.-Ing.) in Computational Geotechnics
Institute for Geotechnical Engineering, University of Stuttgart *2017 – 2022*
- Thesis: Convected Particle Domain Interpolation Method for Large Deformation Geotechnical Problems.
  Supervisor: Prof. Christian Moormann.
- *magna cum laude* (Sehr Gut, German Grade: 1.0)

University of Stuttgart
Master of Science in Computational Mechanics *2014 – 2016*
- Thesis: Improvement of the Frictional Contact Algorithm with application to monopile installation simulations.
  Supervisor: Prof. Christian Moormann.
- German Grade: 1.8

SRM University, India
Bachelor of Technology in Mechanical Engineering *2008 – 2012*
- Focus: computational mechanics, thermodynamics, and fundamentals of finite element analysis.
- German Grade: 1.3
- **Performance-based Scholarship Award**: Top 10 students of the cohort.

TECHNICAL SKILLS

Expertise: **Scientific Software development**, Computational Geomechanics, Large-deformation simulations.
Programming: **Fortran** (~12 yrs), **MATLAB** (~12 yrs), **Python** (~8 yrs), **Julia** (~3 yrs), **C++** (~3 yrs)
Technical: Abaqus, ANSYS, OpenFOAM, Plaxis, NumPy, Pandas, Bash, Shell, Visual Basic, Docker, Git
Productivity: Linux, MacOS, Microsoft Office, LaTeX

LANGUAGES AND SOFT SKILLS

Native: **English**, Tamil
Fluent: **German**, Hindi, Telugu
Soft Skills: Research and teaching, leadership and mentoring, cross-cultural awareness, multilingual communication