Ali Darijani

Mathematician · Computer Scientist

Aachen, Germany, Europe, Earth, Solar System, Milky Way, Virgo Supercluster, Laniakea Supercluster

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"Use "Trivial" to avoid writing something that you can not write easily in LaTeX."

Summary

Half mathematician, half computer scientist who has the mathematical knowledge to understand the underlying work of an existing software tool and the programming skill to bend it to his will.

Higher Education

RWTH Aachen/Rheinisch-Westfälische Technische Hochschule Aachen *Aachen, Germany, Europe, Earth*

MSc/Master of Science *2023*

- Simulation Sciences - GPA 1.9 GPA: Grade Point Average | 1.0: Top Mark | 4.0: Passing Mark | 5.0: Failing Mark
- Focus: Mathematics, Computer Science, Physics
- Thesis: Deep Unfolding in Wirtinger Flow Schemes(A blend of Machine Learning and Image Processing)
- Supervisor: As I value their time and this resume is online, their contact info will only be available upon request and the careful inspection of the said request.

SUT/Sharif University of Technology *Tehran, Iran, Middle East, Earth*

BSc/Bachelor of Science *2016*

- Mechanical Engineering - GPA: 15.96 GPA: Grade Point Average | 20: Top Mark | 10: Passing Mark | 9: Failing Mark
- focus: Mathematics, Computer Science, Physics
- Thesis: Two-Phase Melting Simulation of Finite Solids
- Supervisor: As I value their time and this resume is online, their contact info will only be available upon request and the careful inspection of the said request.

Professional Experience

RWTH Aachen(Digital Additive Production (DAP)) *Aachen, Germany*

Research Assistant(RA)/Wissenschaftliche Hilfskraft(WiHi) *April 2022 - December 2022*

- Task 1: Checking the correctness of a paper's symbolic computation with the SciPy library in Python.
- Task 2: Graph based drawing of an ontology as to provide a specific client the overall idea behind a software package and its capabilities.
- Task 3: Modeling of a shape/topology optimization problem for lattice based structure using phase field technics in the FEniCS package.
- Task 4: Visualization of lattice based structure using OpenGL for fast and real-time rendering for the client.
- **Technical Skills:** UNIX/Linux, Bash/Zsh, SSH, Python, SciPy, Graphviz, C/C++, OpenGL, TeX/LaTeX, FEniCS
- **Math Skills:** Computer Graphics, Computational Geometry, Graph Based Visualization, Variational Methods, FEM Methods, Continuum Mechanics
- **Soft Skills:** Google-Fu, speed reading, time management, Communication, presentation skills.

RWTH Aachen(GRS - German Research School) *Aachen, Germany*

Research Assistant(RA)/Wissenschaftliche Hilfskraft(WiHi) *November 2018 - February 2019*

- Task 1: Learning Continuum Mechanics, Tensor Calculus, Differential Geometry
- Task 2: Advanced TeX/LaTeXfor Typesetting a PhD Dissertation
- Task 3: Technical English Editing of a PhD dissertation
- **Technical Skills:** UNIX/Linux, Bash/Zsh, TeX/LaTeX
- **Math Skills:** Continuum Mechanics, Differential Geometry, Tensor Calculus
- **Soft Skills:** Google-Fu, Speed-Reading, Time Management, Communication, Presentation Skills.

RWTH Aachen(AICES - Aachen Institute for Advanced Study in Computational Engineering Science) *Aachen, Germany*

Research Assistant(RA)/Wissenschaftliche Hilfskraft(WiHi) *April 2018 - November 2018*

- Learning Stochastic Differential Equations and in Turn Probability Theory
- Programming High-Performance Code in C/C++
- **Technical Skills:** UNIX/Linux, Bash/Zsh, SSH, C, C++, SLURM, TeX/LaTeX
- **Math Skills: Probability Theory, Stochastic Differential Equations, Monte Carlo Methods**
- **Soft Skills:** Google-Fu, speed reading, teamwork, time management, Communication, presentation skills.

Skills

Operating Systems	UNIX®, Linux, POSIX®, macOS®, Darwin®, Arch Linux, Manjaro Linux
Computing Clusters	Secure Shell(SSH), X Window System, Public-key cryptography, Slurm Workload Manager, Module System
Compiled Languages	C, C++, TEX/LATEX
Scripting Languages	Bash, Zsh, *sh, Python
Natural Languages	English, German, Farsi
Build Systems	GNU Make, CMake
Versioning Systems/Platforms	Git, GitHub, GitLab
Markup Languages	HTML, XML, Markdown, AsciiDoc, YAML, TOML
Typesetting Languages/Frameworks	TEX, LATEX, Pandoc, Asciidocter, troff, groff
Text Processing Languages	ed, sed, awk, Perl
Static Site Generators	Jekyll, Hugo
Numerical Libraries	NumPy, Pandas, Matplotlib, SciPy, scikit-image, LAPACK, Eigen, Optuna
Machine/Deep Learning Frameworls	scikit-image, OpenCV, scikit-learn, TensorFlow, Keras, PyTorch
Visualization Libraries/Packages	Matplotlib, Gnuplot, OpenGL, Graphviz
Mathematical Analysis	Real, Fourier, Harmonic, Functional
Mathematical Optimization	Constrained, Unconstrained, Finite-Dimensional, Infinite-Dimensional
Variational Methods	Classical, Direct Methods
Mathematical Visualization	Scientific Visualization, Computer Graphics, Computational Geometry
Soft Skills	Meticulousness, Google-Fu, Subliminal Pattern Recognition, Speed Reading, Touch Typing, Time Management

Natural Languages

English	TOEFL 107, GRE General 321, Multiple RWTH Language Center Certificates, and ...
German	A2
Farsi/Persian	Native but can only use it colloquially

Achievements

2010	**Full Scholarship,** Sharif University of Technology Admission Process	*Iran*
2017	**Full Scholarship,** Ontario Tech University Admission Process	*Canada*
2022	**Gold Medal,** Cloudflight Coding Contest(AI Route)	*Germany*

Interests

Books	Mathematics, Computer Science, Classic Literature, Psychology, Psychiatry, Comics, Manga, Lexicography, Etymology, Linguistics
Sports	Badminton, Jump Rope, Calisthenics, Shooting

“The only way to learn mathematics is to do mathematics:-)”
Paul Halmos